

Duluth Seaway Port Authority

WINTER 2017-18 **NORTH STAR PORT**



THE HARBOR LINE

An end ... and a beginning

“What we call the beginning is often the end. And to make an end is to make a beginning. The end is where we start from.” ~T.S. Eliot

Change is a fact of life, and endings are as inevitable as beginnings. Much like the change of a season, there is no predictable moment to pinpoint exactly when it will occur. Hours become longer, temperatures move up and down daily toward a warmer plateau, snow melts and, one day, you notice spring is here.

Work and organizations, I believe, have the same cadence. Projects develop, people grow, some retire, new employees are hired, results are counted and, one day, you notice that your organization is different. It has happened here again. A leadership change. Life is taking me in a new direction. However, my departure marks another new start for the Port Authority.

When I arrived at the Duluth Seaway Port Authority in the fall of 2013, I made no grand statements of goals or strategic initiatives. At my first board meeting, I made only one promise: to manage as a responsible steward and produce results for the Port’s key stakeholders. In hindsight, maybe that was a pretty grand statement, given the success and long-respected reputation of the organization. But I’ve always managed my work with a stewardship tenet—believing that every day we’re given the opportunity to do better and grow. To make where we work a better place, our only option is to focus on incremental change and forward-leaning growth.

As with most change, that kind of growth starts with people. Good people do things like retire. That’s how I got here. With retirements, one is able to see an organization in a new light and even change how people work within. That is exactly what happened here as new people were hired and others’ responsibilities refocused. Over half of the Port Authority team came aboard in the past four years. With all the change in personnel and priorities, we still managed to grow professionally and organizationally. The team in place today is the most tightly mission-focused staff with which I’ve ever been involved.

Most of this work is foundational and not always visible. But I’d like to give you some idea of the “lift” that this team

has accomplished over the last four years:

- We reaffirmed a 25-year operating partnership with our terminal manager in a manner that increased agent employment over 45 percent.
- This reaffirmation cemented our Duluth Cargo Connect brand and enabled the establishment of Duluth’s first intermodal facility that will drive regional economic development opportunities far into the future.
- The team completed restoration of a dock envisioned for over 20 years—the Clure Terminal Expansion—the largest single capital project in Port Authority history.
- The dock restoration was the jewel of over \$25.5 million worth of infrastructure renewal projects undertaken since 2013.
- And we currently have an additional \$8.4 million in projects to complete over the next two years.

These foundational changes created an increase in the Port’s assets by over 30 percent. From my vantage point, I can say that the Port Authority is definitely different than it was when I arrived. I look up, and the season has changed.

So ... this is my last column as executive director of the Duluth Seaway Port Authority.

As I said in my very first column: What is old is new again. Change has come to the Port Authority as it does in every organization. For an agency that’s been as well-managed as this, I expect changes to be small and incremental. They will be variations in style, not structure.

It was an honor to serve this team and all of the Port’s stakeholders. My great hope is that people will say I left this organization in a better place. The Duluth Seaway Port Authority has an incredible team in place—capable of even greater foundational change in the years ahead as they remain committed to mission, stewardship and growth.

Change found me again and asked, “Are you willing to shepherd another organization through a new season?” I said, “Yes.” An end and a beginning. Spring is upon us.



Vanta E. Coda II



Matt Silverness

The Algoma Guardian takes a steam bath as she nears port on Christmas Day.

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Paul Scinocca

G-tug *Arkansas* gives the bow of the *Orsula* a nudge at the CHS elevator.

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On the front:

Happy New Year! The ice-clad CSL *Assiniboine* sails into port on Jan. 1.

On the back:

Lake Superior is blanketed in sea smoke as the sun rises on a bitterly cold Duluth morning.



Matt Silverness

NRRI turns up the heat on biofuel with coal substitute

BY JULIE ZENNER

It took heat and pressure plus millions of years to transform pre-historic plant matter into the natural coal being used today. Now scientists at the University of Minnesota Duluth Natural Resources Research Institute (NRRI) have harnessed those forces to convert wood and other plant-based biomass into a coal-like fuel in just a few hours. What's more, they have proved the process is viable at a commercial scale.

This recent breakthrough could stimulate growth in Minnesota's forest products industry, help electric utilities and industrial operations transition away from coal, and drive research into advanced biofuel for transportation and other purposes. Its development is right in the wheelhouse for NRRI as it celebrates 35 years on a mission "to deliver research solutions to balance our economy, resources and environment for resilient communities."

NRRI researchers have spent more than a decade formulating biomass mixtures and developing processes to create a coal substitute that performs at comparable energy values to coal, reduces greenhouse gas emissions and works in existing coal-burning facilities without expensive capital investments or major equipment upgrades.

The biofuel product they developed

looks a lot like backyard charcoal but packs an industrial punch. It boasts energy concentrations of around 10,000 Btu per pound. This is significantly higher than the 4,500 to 5,000 Btu of raw woody biomass and exceeds the heating values of some coal currently used in power generation. It can be made using two processes—torrefaction (dry roasting) or hydrothermal carbonation (pressure cooking).

The torrefied biofuel is created by slow roasting woody biomass, such as wood waste from logging or papermaking, up to a temperature of about 650 degrees Fahrenheit. This drives out the light volatile matter while leaving most of the energy content intact. The charred remains are then ground to a fine powder and pressed into briquettes. Non-woody biomass, including invasive plants and agricultural waste, can be similarly converted using hydrothermal carbonation. The material is pressure cooked to make an "energy mud" that is dried and formed into solid biofuel.

NRRI's Renewable Energy Lab in Coleraine, Minn., has the equipment and expertise to churn out this bio-coal product by the ton—approximately four to six tons per day.

"It is pretty exciting to be able to produce this product at a commercially



A sample of biomass pellets from NRRI

Courtesy/NRRI

relevant scale," said NRRI Associate Director Don Fosnacht, explaining the years of research that went into developing a product with the energy content, durability, water resistance and grind-ability to be a viable substitute for coal in industrial applications.

The United States is slowly transitioning away from fossil fuels, with Oregon leading the way as the first state aiming for coal-free power by 2020. Recent large-scale tests of a similar biofuel product at coal-fired power plants in Oregon and Northern Minnesota demonstrate it has all of the right properties to supplement or replace coal in these facilities—while delivering significant environmental benefits. The biofuel emissions have no heavy metal pollutants and significantly lower sulfur levels than coal.

"We clearly have the technology to convert biomass material into an energy product for the future," Fosnacht said. "This product could serve as a bridge to help energy companies meet environmental standards using existing energy infrastructure."

NRRI also is partnering with the Coalition for Sustainable Rail (CSR) to test torrefied biomass for use in preserved historic steam locomotives. In 2017, multiple tests were conducted



Courtesy B. Groehler/UMD

NRRI's Renewable Energy Lab in Coleraine, Minn.

using two small steam locomotives at the Milwaukee County Zoo. The trials helped researchers refine the material to create dense, durable pellets that burn like coal.

“We wanted to verify the torrefied biomass fuel would burn with the same temperature as coal, would burn uniformly and not create too many sparks,” said CSR President Davidson Ward. “We did three rounds of tests at the zoo, and the most recent test we did in November was successful enough that we are now able to transition to a full-scale locomotive.”

The next round of testing is scheduled to occur in spring 2018 in Pennsylvania, using Everett Railroad steam locomotive No. 11. NRRI and CSR are collaborating to manufacture 10 tons of the solid biofuel for use in the test (csrail.org/everett). In addition, the two organizations are working on research endeavors that include a project to build a 100 kW generator with an advanced locomotive-style

steam boiler that burns torrefied wood to produce electricity and an ongoing investigation into ways to convert used railroad ties into clean biomass fuel.

“Every year, the U.S. rail industry gets rid of about 15 million ties that are at the end of their useful lives, and 2-5 million of them wind up in landfills,” said Ward, noting that the railroads have a financial responsibility each year to dispose of the ties they replace. “We are exploring ways to use torrefaction technology to strip the preservatives out of that wood ... leaving a clean wood product that could be densified and burned at a power plant or in a preserved steam engine. We think there could be some real positive impacts on the industry.”

Meanwhile, researchers at NRRI keep chugging along, seeking new opportunities to advance biofuel development. Current work involves using a high pressure gasification process to convert the solid biofuel into a synthetic natural gas. This research



Courtesy Coalition for Sustainable Rail

NRRI researchers ride the Milwaukee Zoo train during biofuel testing.

could yield other marketable products, as well, such as high value chemicals, liquid (diesel and jet) fuels and activated carbon.

“Properties change as we increase heat,” said Fosnacht. “There is a whole gamut of technologies and possibilities in converting different types of biomass. It is pretty exciting to take underutilized forest materials and turn them into economic drivers.”

Keeping watch over Minnesota’s resources: NRRI celebrates 35 years

BY JUNE BRENEMAN

- *Staying up late into the night, deep in the forest, to monitor fragile bat populations*
- *Testing technologies that can remove invasive species from ship ballasts*
- *Making new mineral opportunities possible with private sector partnerships*
- *Delivering data to monitor restoration efforts in the St. Louis River Estuary*

These recent projects are just a few of the many ways the Natural Resources Research Institute (NRRI) in Duluth meets the mission it accepted 35 years ago this summer—to foster a strong natural resources-based economy in an environmentally sound manner.

Back in the early 1980s, Minnesota’s economy was taking a beating. A domestic steel crisis left about 13,000 workers unemployed on the Iron Range, and global competition was threatening the state’s logging, pulp and paper industries. A unique vision was formed to build an institute that would study the economic impact and sustainability of Minnesota’s minerals, forest products, peat, biomass and water-related industries. In 1985, the institute was given a home in an abandoned Air Force defense building, and a

highly skilled and diverse research team was built.

NRRI’s first and longtime director, Michael Lulich, remembers how the institute’s focus left many puzzled.

“We were established to walk the line between a healthy economy and a healthy environment,” he said. “This was a new concept, and there was no particular model to follow.”

Today, under the leadership of Rolf Weberg, NRRI is still pushing against conventional economic development and environmental stewardship models with cross-disciplinary and collaborative momentum. Capitalizing on its unique skill sets, NRRI seeks solutions—not just answers—to find the balance that leads to resilient communities.

“Solutions are more holistic, recognizing the sum of many moving parts,” said Weberg. “We are building our funding portfolio to attract large projects with targeted impact.”

Six initiatives, working collaboratively, drive research for tomorrow’s economy: Renewable Energy, Forest & Land, Water, Mining/Minerals/Metallurgy, Wood Products & Bioeconomy and, finally, Business & Entrepreneurial Support. Learn more at nrri.umn.edu.

Research collaborative to focus on preventing introductions and spread of invasive species by ships

BY JULIE ZENNER

A new effort is underway to help the commercial shipping industry become more environmentally friendly, starting with research that could lead to more effective and affordable ballast water management systems (BWMS) for vessels operating in the Great Lakes and around the world.

The University of Wisconsin-Superior Lake Superior Research Institute (LSRI) launched its Great Waters Research Collaborative (GWRC) in December 2017. This new research team is devoted to assessing the effectiveness of tools for sustainable industrial, commercial and public use of the nation's great waters. Its initial focus is on third-party testing and certification of ballast water management systems to prevent the spread of aquatic invasive species by commercial cargo ships.

"Developers of ballast water management systems are trying to create technology that helps remove unwanted aquatic organisms from ballast water," said Dr. Matt Ten Eyck, director, LSRI, in a panel discussion of the new research collaborative. "(Historically) that is one of the largest vectors of introduction into the Great Lakes region."

Builds on years of experience in BWMS testing

Experienced researchers from LSRI, the University of Minnesota Duluth's Natural Resources Research Institute and AMI Consulting Engineers make up the GWRC team. Core members have spent more than a decade collaborating on ballast water research within the Great Ships Initiative, created by the Northeast-Midwest Institute. Organizers hope to build upon that experience and success.

"We are excited to continue our objective performance evaluations of technologies and policies to protect great waters," said GWRC Principal



Gus Schauer

The *Federal Katsura* is de-ballasting to maintain stability as grain is loaded into its cargo holds.

Investigator Allegra Cangelosi in announcing the new collaborative. Evaluations will focus on prospective BWMS, approval protocols used for evaluating them and ballast water discharge standards. "Our findings are critical to the continuous improvement of those policies and technologies and to help the regional, national and international stakeholders of healthy great waters resources to have confidence in green shipping innovations, like BWMS, as environmental protection tools."

Systems tested on multiple scales

The new collaborative is housed at the University of Wisconsin-Superior and will conduct bench-scale testing of BWMS model components and ideas at on-campus laboratories. This is typically followed by ship-scale testing at a land-based facility to assess the system's effectiveness. The future role of an existing BWMS land-based testing facility on the Superior waterfront is unknown.

"Once a ballast water management system has passed (land-based) testing, it moves onto a shipboard phase where it is installed on an operating vessel

and tested over a period of at least six months in many different water qualities around the world," said researcher and quality assurance manager for GWRC Kelsey Prihoda. "Through that process, there is enough rigor to know that the system would be effective in all of the different situations it might face."

Projects are already underway

Current GWRC projects include U. S. Coast Guard (USCG) shipboard certification testing of a promising BWMS via the Control Union Corporation and NSF International. The collaborative also is assessing movements of organisms by lakers through a Great Lakes Ship Discharge Monitoring Project and bench testing prototype systems.

"While lakers did not bring aquatic invasive species to the Great Lakes region, we are working with GWRC to better understand their movement throughout the system where we trade," said Tom Rayburn of the Lake Carriers' Association. "We believe this will give all the vessel operators on the lakes the tools to refine prevention opportunities and further develop

other practical and effective preparedness actions.”

Industry input and collaboration is key

The work of GWRC is funded by the Great Lakes Restoration Initiative, through the Maritime Administration (MARAD), and overseen by an advisory committee comprised of regional stakeholders in clean maritime commerce. Members include ship owners, port authorities, environmental groups, Great Lakes cities and states, federal agencies, the Great Lakes Commission and the St. Lawrence Seaway Development Corporation. The chair of the committee is Jim Sharrow, director of port planning and resiliency for the Duluth Seaway Port Authority. Deb DeLuca, government and environmental affairs director for the Duluth Port, will assume the chairmanship when Sharrow retires in April.

“The GWRC Advisory Committee offers a meeting ground for stakeholders and regulators within the Great Lakes region to identify and vet effective and efficient solutions to difficult aquatic ecosystem protection problems,” said Cangelosi.

“The maritime industry needs high quality, objective, third-party research to help guide industry decisions on, and give stakeholders confidence in, best practices to prevent new introductions and spread of aquatic invasive species by ships,” said Michael Carter of MARAD.

Great Lakes shipping presents unique challenges

“The Great Lakes have been under assault by aquatic invasive species for decades,” said Molly Flanagan of the Alliance for the Great Lakes. “We need effective ballast treatment systems and other prevention measures that are ‘tried and proven’ to work for the Great Lakes. The GWRC is our go-to source for this critical information.”

Open ocean ballast water exchange requirements have significantly slowed or even stopped the establishment of new invasive species in the

Great Lakes St. Lawrence Seaway system for more than a decade, but there still are concerns about existing ones being transported between the lakes in the ballast tanks of ships. With pressure mounting for uniform national and international ballast water management standards, vessels that operate exclusively on the Great Lakes face particular challenges related to onboard systems that are both effective and practicable.

“Lakers have a difficult job because they typically are doing very short voyages, so, if they are using a chemical treatment, there is a short time for (the chemicals) to come in contact with the organisms, and it requires moving a lot of water up and down very quickly,” said Tyler Schwerdt of AMI Consulting, lead engineer for GWRC. An added challenge is the age of many Great Lakes vessels. “(They) don’t have a lot of room on board or extra power to run treatment systems, so retrofitting these ships is a great difficulty.”

The policy and technology context

GWRC’s tests of BWMS for U.S. Coast Guard and International Maritime Organization certification review could help provide shipowners with reasonable options that address these constraints.

“We are very close to having BWMS that are USCG approved which have been vetted in the Great Lakes—one onboard a ship and one at the land-based facility in the Duluth-Superior harbor,” said Sharrow. “This



Allegra Cangelosi

is an important development. Though all approvals to date have included freshwater testing somewhere, testing in fresh water alone does not necessarily mean the BWMS will work in the Great Lakes.”

Meanwhile on the policy front, Duluth has joined other port authorities, vessel owners and operators, business organizations and industries that rely on maritime shipping in asking Congress to approve the Commercial Vessel Incidental Discharge Act (CVIDA). This legislation would create a universal set of enforceable ballast water rules under the authority of one federal agency. It also would empower states to petition the USCG for tougher standards as technology evolves for new treatment systems aboard commercial ships.

The GWRC project team hopes its outputs will help inform policy efforts like CVIDA to assure any changes to ballast water legislation and regulations continue to protect the Great Lakes and other great waters.



The *American Integrity* cuts through sea smoke as she heads toward the Duluth entry.

Alison Gimpel

Sharrow built a legacy over long career

There are many accomplishments that Jim Sharrow is proud of as he prepares to retire this April from his role as director of port planning and resiliency for the Duluth Seaway Port Authority. They include direct oversight of nearly \$45 million in capital projects during his 15 years with the organization and a successful initiative to beneficially reuse material dredged from the harbor.

Sharrow joined the Port Authority in 2002 as facilities manager following a 28-year “first career” at Duluth-based Great Lakes Fleet, where he designed and built vessels that include the 1000-footers *Edwin H. Gott* and *Edgar B. Speer*. He was promoted to his current position in 2015 and oversees the Port Authority’s capital program, maritime policy, risk management and security plans, plus its connectivity to regional planning initiatives. His years at the Port Authority have been marked by growth and investment in both infrastructure and commercial/industrial facilities.

“I have had a lot of fun building things,” Sharrow said. “We replaced roofs on a large percentage of our facilities, and built a railyard, new docks, and roads in both the Duluth Airpark and at the Clure Terminal—these are things I can

point out to my grandkids and say they were part of my job.

“I’m also proud of efforts to redefine dredged material,” Sharrow added, noting that material dredged from the navigation channels in the Duluth harbor is now safely and legally being reused as sand and dirt for construction and to clean up contaminated sites in the harbor. “It has gone from being a ‘spoil’ to a soil. Reuse is a win-win that is being modeled across the Great Lakes.”

Sharrow also worked with the advisory committee that studied and identified the cause of the accelerated fresh water corrosion problem in the Duluth-Superior harbor.

A native of Erie, Penn., Sharrow earned a bachelor of science degree in naval architecture and marine engineering from the University of Michigan. He joined the USS Great Lakes Fleet in 1974, and retired as director of engineering 28 years later at the age of 50. After a brief stint in private consulting, he came to work for the Port Authority.

Sharrow is a licensed professional engineer in Minnesota and Wisconsin and a member of the Minnesota Society of Professional Engineers, Minnesota Sea Grant Advisory Committee and the Advisory Board of the Lake Superior National Estuarine Research Reserve. He is a past member of the American Bureau of Shipping Great Lakes Technical Committee, past chair of the Harbor Technical Advisory Committee (HTAC), past member of the Lake Carriers’ Association Fleet Engineers Committee, and past Great Lakes/Great Rivers section chair and vice president of the Central Region of the Society of Naval Architects and Marine Engineers (SNAME).

Currently, he is a member of the executive committee of SNAME’s Great Lakes/Great Rivers section; serves as chair of HTAC’s dredging sub-committee, is co-chair of the technical committee of the Great Lakes Dredging Team; and chairs the advisory committee to the Great Waters Research Collaborative—researching equipment that will be installed on ships to protect the Great Lakes from ballast waterborne invaders.

In retirement, Sharrow will continue to serve as president of the Duluth Community Sailing Association, a nonprofit that teaches people of all ages to sail, and vice president of the Duluth Boat Club, which is working to build a multimillion dollar boating facility on Park Point. He and his wife Kathy have three grown sons—one son and daughter-in-law in Washinton plus two married sons in Duluth who are parents of the Sharrows’ four grandchildren.



Jim Sharrow

Steve Isola/AdMax



Jim and Kathy Sharrow

DSFA



Craig Middlebrook/SLSDC

At the U.S. Army Corps of Engineers Admiral’s dinner in Cleveland, Lt. Colonel Dennis Sugrue presented the Commander’s Award for Public Service to Jim Sharrow in honor of his efforts to support the Corps’ work in developing sustainable infrastructure and for being a champion in developing long-term strategies for dredged material management. To Jim’s right are District Commanders Lt. Colonel Adam Czekanski (Buffalo) and Colonel Aaron Reisinger (Chicago).

ASCE grades Port infrastructure

Clure Public Marine Terminal facilities scored high marks on a recently completed American Society of Civil Engineers (ASCE) Infrastructure Report Card, but the average grade for all facilities in the Port of Duluth-Superior reflects a need for significant investment.

Every four years, ASCE's Report Card for America's Infrastructure depicts the condition and performance of American infrastructure in the form of a school report card—assigning letter grades based on the physical condition and needed investments for improvement. This was the first year the Duluth Section participated in the grading process. A team of reviewers assessed local docks, channels and slips based on capacity, condition, operations and maintenance, public safety, funding, future need, resilience and innovation.

Clure Public Marine Terminal facilities scored well above average—Lake Superior Warehousing: A (90%); Clure Expansion: A (91%); Superior Refining Vessel Fueling: A (92%); and CRH: B (86%). The overall average for Port facilities, however, was C+, a score impacted by the inclusion of 14 out-of-service facilities and two facilities

that received failing grades. No facility received higher than 95% in any single area of grading.

“We have a lot of older docks, and the lack of business at some facilities affected their grades,” said Jim Sharrow, director of port planning and resiliency for the Duluth Seaway Port Authority. “But our Port's overall score was consistent with the U.S. average.”

The United States' 926 ports are essential to the nation's competitiveness, serving as the gateway through which 99 percent of overseas trade passes and generating significant economic activity. The ASCE's 2017 Infrastructure Report Card gives U.S. ports a C+ grade, reflecting a nationwide need for investment in port expansion, modernization and repair to remain globally competitive. Local grades were submitted to national ASCE for formal acceptance and inclusion in the final report.

“A lot of stakeholders were involved in reviewing infrastructure to develop accurate grades,” said Nick Patterson, president of ASCE Duluth Section and part of the local review team. “Hopefully, Congress will pay attention and fund work to upgrade Port facilities.”



Dennis O'Hara/Northern Images Photography

Search begins for new Executive Director at Port Authority

The Duluth Seaway Port Authority Board of Commissioners has accepted Vanta Coda's resignation, effective Feb. 9, 2018, and appointed the organization's CFO, Kevin Beardsley, as interim executive director while the search for a successor begins.

Coda, who became the Port Authority's chief executive on Oct. 1, 2013, achieved a number of significant milestones in his time at the Port Authority—including completion of \$25.5 million worth of infrastructure renewal projects, launching the Duluth

Cargo Connect branding initiative and opening a CN Duluth Intermodal Terminal onsite last spring.

In his letter, Coda thanked the board and fellow staff members for welcoming him into this community and supporting his strategic initiatives to grow this organization.

“Vanta opened our eyes to new possibilities during his tenure here,” said Ray Klosowski, DSPA board president. “Coordinating operations with our terminal manager was instrumental in giving us the financial stability to take

on new challenges and create growth opportunities for the Port Authority and for this region. He leaves the Port Authority in a solid position financially, well positioned for future growth.”

Coda was the seventh executive to lead the Duluth Seaway Port Authority in the past 60 years.

That leadership list includes: Robert T. Smith 1957-67; David W. Oberlin 1967-69; C. Thomas Burke 1969-77; Paul Pella 1977-79; Davis Helberg 1979-2003; Adolph N. Ojard 2003-13; and Vanta E. Coda II 2013-18.

Iron ore shipments through Twin Ports at 10-year high

Iron ore shipments through the Port of Duluth-Superior topped 19.7 million short tons, making 2017 one of the strongest seasons in recent memory. In fact, the last time anywhere near that many tons of pellets moved out of the Twin Ports was a decade ago.

Across the Great Lakes, the surge in domestic demand for pellets plus exports to Asia boosted the season's iron ore throughput to 60.3 million tons—the highest recorded since 2012, according to Lake Carriers' Association.

"It's been a robust year for Minnesota iron ore," said Adele Yorde, public relations director for the Duluth Seaway Port Authority. "Inbound shipments of limestone also posted gains as did outbound shipments of low-sulfur coal. Those increases helped push Duluth-Superior's season-end tonnage tally to 35.3 short tons or 17 percent higher than just a year ago."

Tonnage figures could have climbed even higher had Mother Nature not reared her ugly head during the holidays. Weeks of sustained frigid temperatures hampered loadings and stalled momentum in the Twin Ports and across the Great Lakes-St. Lawrence Seaway system. While international demand for iron ore had boosted tonnage by nine percent along the St. Lawrence

2017 Season Snapshot

	2017	2016	% change
Iron Ore	19.7 M	14.7M	+33.9%
Coal	10.3M	10.2M	+1.2%
Grain	1.0M	1.7M	-40.5%
Other (stone, cement, salt, etc.)	4.2M	3.5M	+20.6%
Overall Tonnage*	35.3M	30.1M	+17.1%
Vessel visits	838	707	+16.0%

*reported in short tons

Seaway, the Arctic blast caused ice to form fast in the locks, temporarily halting transits for a handful of ships and delaying closure of the Seaway's 2017 season until Jan. 11.

"By all accounts, manufacturing and steelmaking sectors are looking strong heading into the first half of this new year," added Yorde, "which bodes well for the 2018 shipping season to open on an upbeat note for the Port as a whole and for Duluth Cargo Connect. With our recent dock expansion and new service offerings, we anticipate a brisk pace for project cargo. We also expect freight movements by truck and rail through our CN Duluth Intermodal Terminal to double first-year projections."



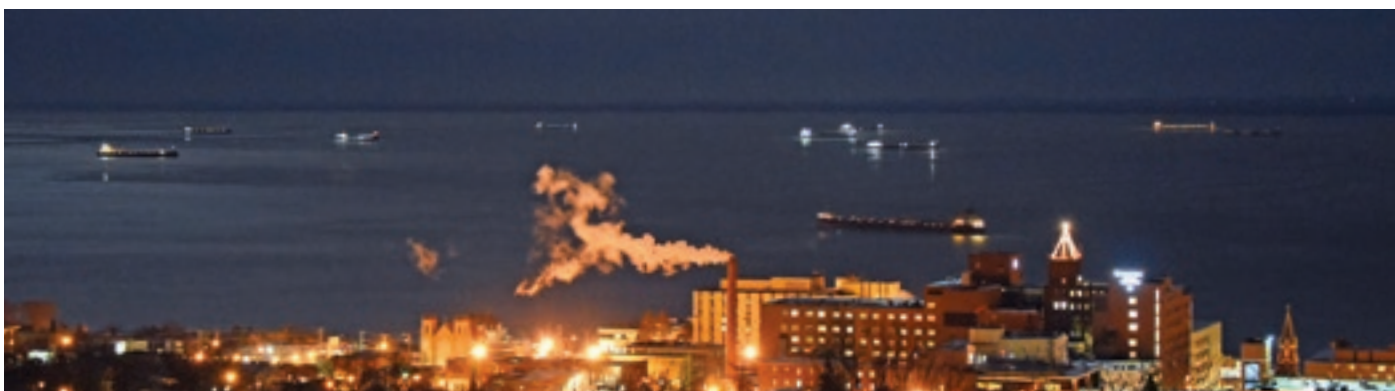
Paul Scinocca

With the surge in iron ore loadings, the *Mesabi Miner* (with her signature steam plume) made several visits to the CN Duluth Dock.



Carole Lent

Canadian lakers moved 36% of the Twin Ports' iron ore shipments in 2017.



David Schauer

Ten ships at anchor under a New Year's full moon wait for temps to rise and berths to open up.

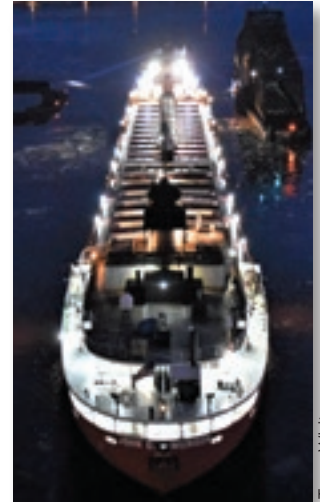
Paul Scinocca



Firsts & Lasts for the Record Books

First Laker out	03/22/17	7:46 a.m.	Roger Blough
First Laker in (thru Soo)	03/26/17	1:22 a.m.	Stewart J. Cort
First Salties in	04/02/17	5:23 p.m.	Lake Ontario
Last Salties out	12/20/17	2:33 a.m.	Beatrix
Last Laker out	01/12/18	7:22 p.m.	Joseph L. Block
Last Traffic in	01/17/18	6:18 a.m.	Edwin H. Gott

Left: The *Beatrix*, with an assist from Heritage Marine's *Helen H.* tug, was the last saltie to visit the Twin Ports in 2017. Right: The *John G. Munson* makes a midnight move to the C. Reiss terminal via Grassy Point Bridge.



Terry White

Winter Layup in Port of Duluth-Superior

VESSEL	ARRIVAL	CARRIER	DOCK/BERTH
<i>Kaye E. Barker</i>	1/09/18	Interlake Steamship Co.	Fraser Shipyards
<i>James R. Barker</i>	1/09/18	Interlake Steamship Co.	Midwest Energy Resources
<i>Lee A. Tregurtha</i>	1/10/18	Interlake Steamship Co.	Fraser Shipyards
<i>Erie Trader/Clyde S. VanEnkevort</i>	1/11/18	Van Enkevort Tug & Barge	Clure Terminal Berth 1
<i>Burns Harbor</i>	1/14/18	American Steamship Co.	Elevator M
<i>Edwin H. Gott</i>	1/16/18	Great Lakes Fleet/Key Lakes	Clure Expansion Berth 8/9

* NOTE: Arthur M. Anderson arrived 1/15/2017, but didn't sail last season; she remains in layup east of CN Dock 6.

Jane Herrick



The *Joyce L. Van Enkevort* tug sails solo to do some icebreaking for the *Great Lakes Trader*.



Paul Scinocca

With no ice in sight, the *Walter J. McCarthy Jr.* departs the Twin Ports Dec. 3 with a load of coal for St. Clair, Mich.

Robert Weilton



Last one in, the *Edwin H. Gott*, gets an assist from Heritage Marine, whose tugs also handled icebreaking in the harbor and the slip at the Clure Terminal prior to her early morning arrival.

2017: Strong wind energy shipments



Handling heavy-lift, oversized wind energy cargo continues to be big business for Duluth Cargo Connect. Three of the shipments that arrived in 2017 with nacelles, hubs, drivetrains, blades and towers for 16 wind turbines were destined for ALLETE Clean Energy projects across the upper Midwest.

The massive components arrived aboard the *Marsgracht* (April 27), the *Muntgracht* (May 17) and the *BBC Mississippi* (Nov. 23). These shipments were part of ALLETE Clean Energy's \$100 million investment in wind turbines that qualify for the federal tax credit "safe harbor" provision. That means a portion of them will be installed at locations to qualify the sites for renewable energy production tax credits.

ALLETE Clean Energy plans to utilize some of the 16 turbines at an



Dennis O'Hara/Northern Images Photography

Duluth Cargo Connect saw a flurry of activity as the 2017 shipping season wound to a close. Fleet mates, *BBC Mississippi* and *BBC Vesuvius*, are docked side-by-side at the Clure Public Marine Terminal and its adjacent newly rehabbed heavy-lift dock. The first ship discharged 64 wind turbine tower sections from Indonesia, while the second arrived to load a 242-ton reactor (below) bound for Columbia.

up-to-106-megawatt wind farm that it will build, own and operate in North Dakota under a power sales agreement with Xcel Energy. Others may be installed at a 48-megawatt wind farm the

company will build for Montana Dakota Utilities under a power sales agreement and sale option. Construction on both projects is expected to begin in 2018.

... and some heavy lifts



Over weight/over dimensional freight is our specialty. Duluth Cargo Connect crews loaded this 242-ton reactor above for Columbia. Once secured, a few colleagues stopped for a quick photo (from left): Kevin Korzenowski, Jordan Korzenowski, Zoran Pedisic, BBC Port Captain Brian Baxter, and Pete Kramer. Moving a 163-ton boiler from Nebraska (left) to the Port of Duluth for delivery to Sarnia, Ontario also was a huge team effort. The entire unit—two tractors, two specialized flatbed trailers and the boiler—extended 350 feet and weighed 442 tons. It was after midnight (below) when the boiler was ready to be lifted aboard the *Erik*.



Photos by Robert Weilton

Interlake completing a fleet of environmental upgrades

The *Paul R. Tregurtha* is about to become the largest freighter on the Great Lakes to be outfitted with fresh-water, closed-loop exhaust scrubbers. The vessel is undergoing the work this winter at Fincantieri Bay Shipbuilding Company in Sturgeon Bay, Wis. This is the fourth and final phase of Interlake's emission-reduction program.

"We are executing on our long-term vision to be the most efficient and environmentally responsible fleet on the Great Lakes," said Interlake President Mark W. Barker in a 2017 statement about the scrubber installations. "Being able to successfully reduce our emissions and lead the way with this technology has been a major undertaking for us ... It demonstrates our company's proud commitment to continuously improve and invest in our ships."

The *Paul R. Tregurtha* is the fifth vessel in Interlake's fleet to get the scrubbers, which effectively strip the majority of sulfur and particulate matter from the ship's stack emissions. The same DuPont™ Marine Scrubbers from BELCO were first installed and tested on the *Hon. James L. Oberstar* in 2015.



Scott Pearson



Interlake's signature white clean steam plume will be visible from the stack of the *Paul R. Tregurtha* once her scrubbers are installed this winter. [Inset courtesy Interlake Steamship Co.]

This was followed by the *James R. Barker* and *Lee A. Tregurtha* in 2016 and the *Mesabi Miner* in 2017.

As the first U.S.-flag fleet to implement the scrubber technology, Interlake was not only tasked with proving its emission-reduction capability but also in developing a sustainable

supply and delivery infrastructure to support its widespread use on the Great Lakes. Specifically, the scrubber system relies on an injection of sodium hydroxide to neutralize and remove sulfur from exhaust gas. That chemical has to be delivered to the vessel about twice a month. Interlake has worked with a number of partners to develop supply capability at several Great Lakes ports, including the Superior Refining Co. vessel fueling facility on the Clure Terminal in Duluth.

Algoma Central acquires four U.S.-flag ships

Just before the end of 2017, Algoma Central Corporation announced it had reached an agreement with American Steamship Company to acquire four vessels: the *Buffalo*, the *Adam E. Cornelius*, the *American Valor* and the *American Victory*. All four are former U.S.-flag lakers that will be transferred to the Canadian registry for service in the Great Lakes/St. Lawrence trade.

Both the *Buffalo* and the *Cornelius* will provide capacity to serve Algoma's customers in the river-class segment of its domestic dry bulk market. The two steamships—the *American Valor* and the *American Victory*—have the potential to be repowered as motor vessels, converted to articulated tug barges or have their forebodies mated with existing modern sterns. However, no immediate plan for these two vessels has been confirmed.



Mary T. George

The *Adam E. Cornelius* was a frequent visitor to the Twin Ports in years past.



Nick Stenstrup

The *American Victory* at her new dock at Loon's Foot Landing in Superior.

MnDOT gathers input on Twin Ports Interchange project

The Minnesota Department of Transportation (MnDOT) has about half of the \$204 million funding in place for a major redesign and overhaul of the I-35, I-535, Hwy 53 Twin Ports Interchange in Duluth, commonly called the “Can of Worms.”

MnDOT Duluth District Engineer Duane Hill said the project is still in the conceptual state, but enough of the funding has been secured to start construction in 2019 if details of the redesign are finalized. MnDOT is utilizing a systematic process called value engineering to determine the best ways to redesign the interchange and stage construction at the lowest costs. Numerous stakeholder meetings were held in late 2017 to gather input and feedback.

“We are working through the process, listening to input and showing alternatives to address concerns,” Hill said, noting that community buy-in is very important. “We hope to

identify a preferred design by July, but that might not be possible because it is very complex.”

The planned project will facilitate smoother freight movements in and

out of the Twin Ports. It will allow large trucks hauling oversized loads from Duluth Cargo Connect on the Port Terminal easier access to southbound I-35 and northbound Hwy 53.



Courtesy MnDOT

Cargo feature: Scintillating notes on sintering

If you ask locals to name products shipped through the Port of Duluth-Superior, they likely would rattle off common cargoes like taconite pellets, coal, grain, limestone, salt, cement or wind energy components. Sinter ore might not even make the list.

Sinter ore is a byproduct of iron mining—but it doesn’t go to waste. It often includes taconite “chips” captured during pellet production and/or the “fines,” or dust, collected when pellets are screened prior to loading a ship.

Several shipments of sinter ore are loaded and shipped from the Twin Ports each season through CN Duluth and Hallett docks. They usually travel to one of two places on the Great Lakes that can process it for steelmaking, USS-Gary Works and Arcelor Mittal-Burns Harbor. Sintering plants in those locations agglomerate the dust and particles with other materials at a high temperature to form irregular clumps, called sinter, which can then be used in a blast furnace. Any undersized particles from this process are returned for more sintering.

Sinter is critical to blast furnace steel production. It is layered along with lump iron and pellets to maintain a porous



David Schauer

The *Great Republic* arrives with a load of limestone while the *Cason J. Callaway* loads sinter ore at Hallett Dock 5 in Duluth.

feed bed so air moves through the blast furnace during the steelmaking process. A (s)interesting bit of trivia.

Two new members join Green Marine

Two prominent players in the Great Lakes maritime industry have joined Green Marine, marking a couple of firsts for the voluntary environmental certification program for maritime industry in North America.

The Interlake Steamship Company was the first U.S. Great Lakes shipowner to join Green Marine. The Great Lakes Towing Company enrolled both its tugboat fleet and its shipyard facility, becoming the first U.S. shipyard member.

“Green Marine certification aligns well with our strategic initiatives regarding the environment,” said Interlake President Mark W. Barker. “We have a long-term vision for our industry, and we are investing in our ships and equipment to offer the most

reliable, efficient delivery within an industry that is already the greenest form of transportation available.”

“We continuously strive to improve the quality and safety of our products and services,” said Great Lakes Towing President Joe Starck. “As leaders in the industry, we believe we have an obligation to do what we can to make certain our commercial activities are as sustainable as possible both in our tug operations and at our shipyard facility.”

Green Marine offers a roadmap for shipowners, port authorities, terminal operators and shipyards to voluntarily reduce their environmental footprints. Its rigorous environmental certification process uses 12 performance indicators that include greenhouse gases, air emissions, spill prevention, waste



David Schauer

Interlake's *Kaye E Barker* gets a tug assist from Great Lakes Towing's *North Dakota*. The companies are new Green Marine members.

management, environmental leadership and community impacts. The Duluth Seaway Port Authority has participated in the program since its inception in 2008.

Fednav receives award for environmental protection

Fednav Limited has earned the celebrated IBJ Bulk Ship Operator Environmental Protection Award, presented by International Bulk Journal. This award spotlights Fednav's excellence in environmental stewardship in the maritime trade, along with its leadership in implementing the

highest industry operating standards, including those for safety and efficiency.

Environmental protection is a cornerstone of Fednav's philosophy. The company consistently exceeds its target of lowering its greenhouse gas (GHG) emissions by one percent per

year (in grams per metric ton-mile). Its new vessels emit 40 percent less GHG than the ship the company built 30 years ago. Fednav is a founding member of Green Marine, a voluntary, binational program aimed at strengthening the marine industry's environmental performance.



Winter work at the Soo Locks

U.S. Army Corps of Engineers photo by Michelle Briggs

Winter maintenance offers a very different perspective of the massive Soo Locks system, the engineering linchpin of Great Lakes shipping. During the seasonal shutdown, crews address regular inspections and maintenance plus major repair projects, including a \$2.4 million upgrade to the Poe Lock. Gate pieces are being replaced to remove aging and deteriorating infrastructure. It takes about 22 million gallons of water to raise the level of the lock by 21 feet when a ship comes through, so prepping it for repairs is no small feat. Here's a peek at what the locks look like completely empty. It took several 300⁺hp pumps 16 hours to clear out all the water.

It's fun to be first

Time once again to test your guesstimating skills. When do you think the very first oceangoing vessel of 2018 will sail into the Port of Duluth-Superior beneath the Aerial Bridge?

Log onto www.visitduluth.com/firstship and enter your guess in this year's First Ship Contest, cosponsored by the Duluth Seaway Port Authority and Visit Duluth. The person with the closest guess of date/time will win a great Duluth Getaway package.

The contest runs through March 25. Weekly shipping quiz questions also will be posted on Visit Duluth's Facebook page, where folks can respond and qualify for additional fun prizes.



Last year's first saltie, the *Lake Ontario*, arrived April 5 at 17:32:05.

Jon Dyess

Minnesota Sea Grant educator wins top teaching award

Minnesota Sea Grant Extension Educator Cynthia Hagley has been chosen by the Association for the Sciences of Limnology and Oceanography (ASLO) to receive its distinguished Ramón Margalef Award for Excellence in Education. ASLO selected Hagley for her vision and success at developing career-long relationships among scientists and educators, for impacting thousands of students, and for making environmental and aquatic data understandable to non-specialists.

Hagley's resume features an extensive list of partners and projects. In the past two years, her efforts as a co-lead of the Center for Great Lakes Literacy have helped more than 370 educators bring aquatic science to about 3,500 students. She has been a co-principal investigator on dozens of grants that educated society on key water problems and has led multiple shipboard education workshops in collaboration with the U.S. Environmental Protection Agency, Great Lakes Sea Grant Network and other partners. Hagley recently facilitated follow-up sessions from the Governor's Water Summit in Minnesota, which brought together government, industry and agricultural interests to discuss a sustainable water future. ASLO will present the award in June 2018 at its summer meeting in Victoria, British Columbia, Canada.



Minnesota Sea Grant's Cynthia Hagley, in the tan jacket above, leads a group of educators in an aquatic science workshop aboard the UMD Large Lakes Observatory's R/V *Blue Heron*.

Courtesy, Minnesota Sea Grant

Team shifts gears at Great Lakes Fleet

The management team for Key Lakes, Inc., operators of Great Lakes Fleet, has a few faces in new places in Duluth. Former Port Captain Ken Gerasimos was named fleet manager last June and, most recently, promoted to general manager following John Thibodeau's retirement at the end of 2017. Ralph Ray, long-time purchasing agent at the fleet, was named port captain. While "Thibs" will maintain an active presence on the Duluth waterfront during winter layup this year, the company has hired two new port engineers to cover maintenance for Great Lakes Fleet vessels in layup elsewhere: John Stockert, formerly with Grand River Navigation, and David Hunt, who moved from the American Bureau of Shipping in Sturgeon Bay.



Ken Gerasimos



Paul Scirocca

Altec Inc. to expand manufacturing facilities on Clure Terminal

Altec Inc. announced in mid-December that the company will invest \$8.56 million and create 100 jobs in an expansion of its manufacturing facilities on the Clure Public Terminal in Duluth. The manufacturer of specialized aerial lift trucks plans to purchase new equipment and make other upgrades at its Duluth facility, where 230 people already are employed.

The Minnesota Department of Employment and Economic Development (DEED) is supporting the project with a \$550,000 forgivable loan to the Birmingham-based

company from the Minnesota Investment Fund. The MIF loan will be forgiven if the company meets its hiring and investment goals. The Duluth Seaway Port Authority, which owns the Duluth building in which Altec operates, is contributing another \$3.5 million to the project in the form of building upgrades.

“The fact that Altec is choosing to invest and grow its business here in Duluth is great for our entire community,” said Port Authority Board President Ray Klosowski.



Dan Mackey

Alder approaches the Superior Entry at sunrise on a bitterly cold January day.



Showered with blessings

The annual Blessing of the Port has been set for Thursday, April 19, at the Lake Superior Maritime Visitor Center in Canal Park. Hosted by the Twin Ports Ministry to Seafarers, the ceremony will begin at 5 p.m. Refreshments will be provided. The service is open to the public. For more information: (218) 727-5897

Huberty tapped for St. Louis River Remedial Action Plan

Barbara J. Huberty has joined the Minnesota Pollution Control Agency as the new St. Louis River Area of Concern (SLRAOC) Coordinator. She will oversee the St. Louis River Remedial Action Plan and coordinate the multi-state and federal agency group implementing priority actions to remove beneficial use impairments and delist the SLRAOC by 2025.

Huberty has broad knowledge of Minnesota’s water resources, pollutant sources and effects, and watershed planning and management approaches. She most recently served as director of the Minnesota Legislative Water Commission, where she successfully supported the activities of the bicameral, bipartisan organization with policy and legislative development.



Barbara Huberty

Former morning anchor joins Visit Duluth

Visit Duluth has named Maarja Anderson Hewitt as media communications manager. The former television news reporter and WDIO TV Good Morning Northland anchor will oversee all aspects of social media as well as manage user generated content and engagement. In addition, Hewitt will promote Duluth to regional, national and international travel writers, bloggers and television producers, hosting them on citywide familiarization tours, pitching story ideas and sharing experiences unique to Duluth. Hewitt is a graduate of the University of Wisconsin Madison with a degree in journalism and mass communications. She succeeds Bob Gustafson, who left Visit Duluth in November 2017 for a position in brand management at Centricity Credit Union.



Maarja Anderson Hewitt

2018 Calendar Contest: Winning shot celebrates working port

Photographer Matt Silverness remembers the beautiful spring evening in the Twin Ports when he captured the winning shot in the Duluth Seaway Port Authority's 2018 Calendar Contest.

"The sun had just set over the hill creating a rich orange background," he recalled, noting that the harbor was very busy that evening. "The *Algoma Enterprise* was backing in just behind the *Kentucky* and *Arkansas* tugs assisting the *Federal Kumano* ... Once I had the composition I wanted in the viewfinder, showing as much of the action as I could without over-crowding the frame, I took a few clicks of my camera's shutter. It was a fabulous evening to be out!"

The winning image appears on more than 12,000 calendars distributed in the Twin Ports, across North America and overseas. It is captioned "Honoring our Working Waterfront. The Port of Duluth-Superior Powers the Economy of Our Entire Region."

The calendar has been so popular that the Port Authority ran through its full supply by mid-January. Thanks to all of the photographers who submitted entries. In just a few months, the call for entries will go out for the 2019 contest.



PORT PASSINGS

Daniel J. Kobasic, 71, founder of Basic Marine in Escanaba, Mich., and an iron man of the maritime industry, died Nov. 30, 2017. Kobasic started his first job on an iron ore freighter the day he turned 18. He worked his way "up the hawspipe" and attended navigation school in New York, eventually becoming a celestial navigator, 2nd mate in the U.S. Merchant Marine. As a merchant mariner, he circumnavigated the globe three times and helped deliver goods and weapons around Southeast Asia during the Vietnam War. After eight years on the ships, he returned to Escanaba and opened a Shakey's Pizza restaurant. In 1979, he started Basic Marine. The business grew from humble beginnings into an impressive maritime construction endeavor, building more than 240 vessels. Kobasic exited the pizza-making business in 1986 and turned his full attention to Basic Marine. Together with his brother and business partner, Claude Kobasic, he expanded the footprint of the business during the late 1980s and early 1990s, adding a drydock to allow for the repair of

larger vessels. He also launched Basic Towing, which grew to a fleet of eight vessels, and he maintained a former WWII Coast Guard Cutter, *Erika Kobasic*, as an icebreaker. A recent dock expansion at Basic Marine allowed the first saltwater merchant vessel to visit Escanaba in 80 years. Kobasic is survived by three daughters, three grandchildren, eight siblings and many nieces and nephews.

John P. Bergson, 83, lifelong Duluth and Hermantown area resident, died Nov. 26, 2017, in Haugen, Wis. Born in the midst of a terrible Depression, he never knew hunger or want because of the family farm, Pine Ridge Dairy. It was there Bergson learned a strong work ethic and sense of family. Bergson graduated from the University of Minnesota with a degree in civil engineering and worked as a civil engineer for the DM&IR Railroad for five years before a 32-year career at Salo Engineering, Duluth. Through the years, he was involved in numerous projects at the Duluth Port, Duluth International Airport, Sky Harbor

Airport and Ely Airport, plus rail projects. He was a U.S. Navy veteran and an active member of Trinity Lutheran Church in Duluth, Boy Scouts of America, Toastmasters and the American Society of Civil Engineers. Bergson is survived by a daughter, two sons, a brother, 12 grandchildren, two great grandchildren and other family members.

William G. Lehman, 70, of Superior, died Dec. 14, 2017. An Iowa native and U.S. Air Force veteran, Lehman lived the majority of his life in Wisconsin. For over 30 years, he proudly worked for the City of Superior as the city planner and port director and was involved in many projects, including the development of Barker's Island. He went on to work for the State of Wisconsin Department of Commerce. Lehman was a devoted public servant who was elected village supervisor in the Village of Windsor, Wis., and volunteered on many boards and committees over his career. He is survived by his wife, Penny, a daughter, son, stepson, stepdaughter and grandson.

IN FOCUS: Matt Silverness

This is the latest in a series of profiles about the gifted photographers whose images bring the Port's working waterfront to life.



Matt Silverness

Matt Silverness, 33, got into photography as a teenager, taking pictures of his high school pep band. When his “point and shoot” camera was stolen from his locker, family members replaced it with a model that had manual settings. He started experimenting with aperture and shutter speeds—and the rest is history. Although his primary career is in human resources, Matt has made a name for himself in the world of professional photography. See more images at www.silvernessphotography.com.

What draws you to Great Lakes shipping and the working waterfront for images? I spend so much time down by the Lake, as much as I can, and the ships really amaze and mesmerize me. Shipping certainly is part of our economy, and that is interesting to me. I love our extreme changes in weather and photographing ships coming and going when the weather is really bad more than anything—or capturing that moment when there is a beautiful sunrise or a beautiful sunset.



Is there a personal connection with Lake Superior and the Port of Duluth-Superior? Two of my dad's cousins worked on the *Cason J. Callaway* so I'm especially drawn to that ship. I also spent a lot of time in my youth at a family cabin on the end of Park Point.

How do you describe your approach to photography? I try to keep it as simple as I can. I'm not into doing a lot of editing. I want to keep things real.

Is there a favorite time of day or season when you get your best shots? My favorite times of day are right before the sun pops up and within 30 minutes of when it sets. Those time frames are most colorful and dramatic. I also love photographing the gales of November.

Are most of your shots planned or spontaneous? I look at the conditions. If a ship is in sight, I try to choose a spot where I'll have the best lighting and foreground. My shots are pretty spontaneous. I always have a camera with me.

What makes a great shipping or harbor shot? It has to have interesting elements—a beautiful sky, glassy calm or big wave action—something beyond the ordinary. I'm pretty certain when I get a great shot.



Photos by Matt Silverness



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