

Great Lakes and Marine Industry News Update

February 2022

Gordie Howe International Bridge Update



PONT INTERNATIONAL
**GORDIE
HOWE**
INTERNATIONAL BRIDGE

MARITIME COMMUNITY STAKEHOLDER MEETING

February 2, 2022



Gordie Howe International Bridge Update

PROJECT COMPONENTS



Gordie Howe International Bridge Update



THE BRIDGE |

6 lanes – 3 in each direction

2.5 kilometres | 1.5 miles

Clear span of 853 metres | 0.53 miles

Multi-use path for pedestrians and cyclists

3.6 metres | 11.8 feet wide

Dimensions for the height at shore is 219.4 metres | 719.8 feet
and at center is approx. 50 metres | 164 feet from the water;
height from land to deck is 36.29 metres | 119 feet (Can side)
and 37.18 metres | 121.9 feet (U.S. side)

Gordie Howe International Bridge Update



CANADIAN PORT OF ENTRY

Size: approx. 53 hectare/130 acres
Inbound border inspection
Outbound inspection facilities
16 toll collection facilities
Maintenance facility and parking
24 primary inspection booths
Outbound inspection facilities
Extensive landscaping

Gordie Howe International Bridge Update

CONSTRUCTION SCHEDULE

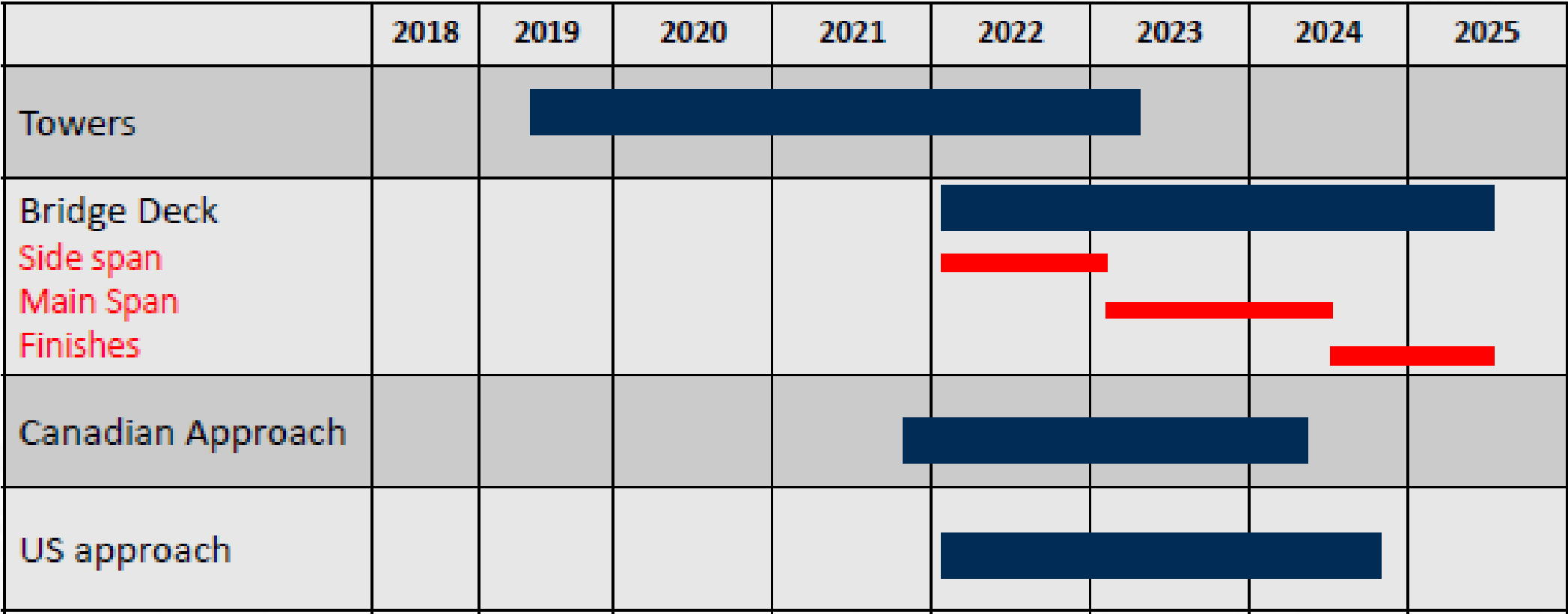
	2018	2019	2020	2021	2022	2023	2024	
Project Start-up	■							
Design	■	■	■	■				
Construction	■	■	■	■	■	■	■	■
Bridge		■	■	■	■	■	■	■
Canadian POE		■	■	■	■	■	■	■
US POE		■	■	■	■	■	■	■
MI Interchange		■	■	■	■	■	■	■
Turnover and Commissioning						■	■	■

Note: Dates are subject to change as BNA is currently developing an accelerated schedule

- Estimated construction duration 74 months
- 70% of construction hours will occur between 2021 – 2023
- It is anticipated that the Gordie Howe International Bridge open to traffic by the end of 2024

Gordie Howe International Bridge Update

BRIDGE CONSTRUCTION TIMELINE



Note: Dates are subject to change as BNA is currently developing an accelerated schedule

Gordie Howe International Bridge Update

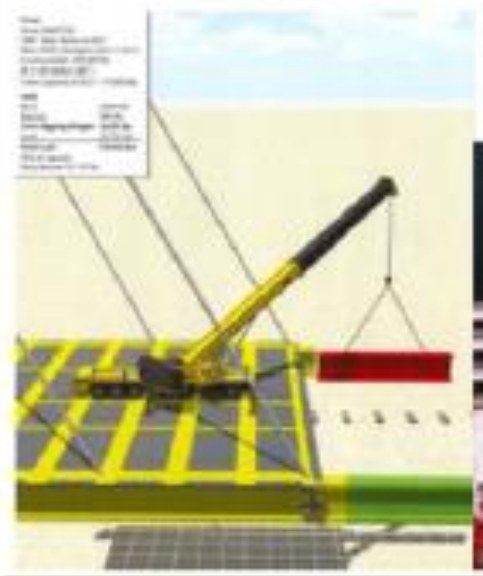
BRIDGE CONSTRUCTION UPDATE



Gordie Howe International Bridge Update

BRIDGE CONSTRUCTION METHOD

- Cantilever system; Stick build
- Build back span using temporary towers while main concrete towers are being erected
- Erect Main Span in Un-Balance cantilevered fashion without picking segments off the water
- Main Span will be erected 'stick-built' with the pieces being transported from the back span or Pylon to the main span



Gordie Howe International Bridge Update

NO RESTRICTION TO MARINE TRAFFIC

- Close coordination with Coast Guards on both sides



Gordie Howe International Bridge Update

NAVIGATION NOTICES AND WARNINGS

NAVWARN: NW-C-2369-20

- Exclusion Zone on CAN Shoreline
- <https://nis.ccg-qcc.gc.ca/public/rest/messages/en/message/NW-C-2369-20>



Gordie Howe International Bridge Update

NAVIGATION NOTICES AND WARNINGS

		Gordie Howe International Bridge BNA Weekly Maritime Update GHIB-GNRL-TV-GN-NOT-0002-001			
Date/Time		Monday, 4 July 2022 @ 0800			
Description		Bridge Construction – Hazard: Crane Work Overhead. Travelling platforms with construction activities overhead. Seawall Construction – Hazard: Vessel Traffic at CAN shoreline, exclusion zone, change of water depths			
Clearance		164ft (50m) above Low Water Datum at center			
Lighting/Nav Aids		Quick flashing red lights and orange balls at lower 4 corners of travelling platforms. Steady burning yellow lights at 4 bottom corners of low steel.			
Point of Contact		Chris Elliott, BNA Maritime Coordinator / 216-757-2068			
Ref NAVWARNs		NW-C-0256-21, NW-C-2369-20			
Broadcast: Mariners are advised to remain clear of working platforms whenever possible.					



VHF Channels:
CH16 – International Distress | CCG MCT5 – CH12 | 218/22A – Marine Broadcast | CH65 – Great Lake SAR and anti-pollution

Gordie Howe International Bridge Update

SAFETY BOATS



US Boat



Canadian Boat

Safety Boat Plan

- Administration and Equipment preparations in progress
- Communication and Response SOPs – Winter 21/22
- Operational - Spring 2022

Gordie Howe International Bridge Update

SAFETY BOATS

- Three Safety Boats (2 Canada/1 US) have been acquired. They will have yellow construction lights and markings
- Crew and boat training will start in April 2022 and the boats will be ready to support the Project starting Spring 2022. Crews will be trained to address relevant water emergencies scenarios as discussed with the US and Canadian coast guards.
- The primary purpose of the safety boats is to provide an emergency response capability for the Project, as well as assist in the safe completion of work within the higher risk working areas, such as our exclusion zone and bridge ROW.
- The plan is to have boats on the water when the seawall construction and overhead bridge construction is taking place, weather permitting.

New CCG Icebreaker Arrives in Sorel for Conversion



**Canadian Coast Guard takes
delivery of light icebreaker**

Mangystau-2

The Canadian Coast Guard has announced the arrival of its newly-purchased light icebreaker from New Brunswick-based Atlantic Towing Ltd. The vessel built in 2010 In Romania, is 217' and travelled almost 6,000 n. m. from Turkmenistan (Central Asia) to the Coast Guard's Sorel, Quebec, base.

It will help ensure service is maintained during planned maintenance periods for the existing fleet in the Great Lakes, St. Lawrence and Atlantic sectors.

CCG

M/S Norgoma sold for \$2500 to Mr. Jeff Dwor, Port Colborne

“He is looking at the M.S. Norgoma as a personal project and renovating for private use,” says Tom Vair, dep. chief administrative officer. Recently, Mr. Jeff Dwor came forward with interest in acquiring the vessel. He flew to Sault Ste. Marie, toured the vessel and is interested in proceeding to acquire the M.S. Norgoma,” Vair says in a report prepared for Monday’s City Council meeting.

If City Council approves the sale, Dwor says he’ll take possession of the Norgoma sometime in May.

Norgoma when she was being used as a museum ship, 2004. Roger LeLievre

Soo Today





Norisle in 2014. Roger LeLievre

S.S. Norisle revitalization project is full steam ahead

Manitowaning, ON – A representative of the S.S. Norisle Steamship Society says the restoration and proposed use for the historic ship are still being explored, that the project is definitely not dead. The project has only been curtailed due to the pandemic. The Norisle has been moored in the Manitowaning harbor since its decommissioning by the Own Sound Transportation Company in 1975.

The Manitoulin Expositor

Coast Guard busy assisting ships in St. Clair River



***CSL
Assiniboine
receives
assistance
from CCGS
Samuel Risley.
January 25,
2022***

*Photo by Walpole
Island Fire Chief
Charles Wright Sr.*



CCGS Samuel Risley and USCG Biscayne Bay escort an upbound Algoma tanker near Marine City, MI.

Andre Gushue



**USCGS Biscayne
Bay and CCGS
Samuel Risley
clearing a path
through the ice
jam in Marine
City for Algonova
at Marine City,
MI.**

Feb. 5, 2022.

Lori Hannon.

Lack of Coast Guard Icebreakers Disrupts Shipping on Great Lakes, Says Task Force

[Mike Schuler](#) from Great Lakes Maritime Task Force



U.S.-flag “lakers” on 20 voyages, with a total of 750,000 tons of carrying capacity for iron ore, coal and cement, were delayed for a total of 325 hours, the group said.

at one point in January, five of USCG’s eight icebreakers operating on the Great Lakes were simultaneously unavailable due to mechanical failures. A total of 68 icebreaking cutter days were lost due to equipment fires or engine breakdowns, the task force said.



**Minntac investigating
mine structure collapse,
no injuries**

**Mountain Iron, MN –
Feb. 8, 2022**

**Minntac is
investigating
following a
structural failure
that led to a
collapse at their
Mountain Iron,
Minnesota mine.
Photos of the
scene show a
conveyor system
collapsed on a
pile of taconite
pellets.**



**The St. Lawrence
Seaway Management
Corporation**

**Corporation de Gestion
de la Voie Maritime
du Saint-Laurent**

**NOTICE OF PROPOSED REVISIONS TO SEAWAY PRACTICES AND
PROCEDURES TO BE EFFECTIVE **March 21, 2022****

PART I – CONDITION OF SHIPS

Landing Booms

- 8. (1) Ships of more than 50 m in overall length shall be equipped with at least one adequate landing boom on each side which are to be in compliance with applicable regulations.
- (4) Ships not equipped with landing booms shall make arrangements with a “Tie-Up Service” provider for tie-up and let-go at Seaway Approach walls prior to commencing transit of the Seaway.

Seaway tolls to increase by 2 percent in 2022

The St. Lawrence Seaway Management Corporation (SLSMC) announced a toll rate increase of 2.0% for the 2022 navigation season (see images below).

In addition, the New Business, Volume, Gateway and Service incentives will continue to remain in effect.

For more detailed information, please refer to the St. Lawrence Seaway Schedule of Tolls or send your request to tariff@seaway.ca.

Tolls Schedule

The SLSMC announced a toll rate increase of 2.0% for the 2022 navigation season. In addition, the New Business, Volume, Gateway and Service incentives will continue to remain in effect.

To learn more about the various incentive programs and the savings they offer, please visit the [Incentive Programs](#) page.

For more detailed information, please refer to the [St. Lawrence Seaway Schedule of Tolls](#) or send your request to tariff@seaway.ca.

2022 Seaway Tolls

(Cargo and Vessel Tolls in Canadian dollars per metric tonne)

Cargo Tolls	MLO	Welland
Bulk cargo	\$1.2142	\$0.8288
Grain	\$0.7460	\$0.8288
Coal	\$0.7460	\$0.8288
General Cargo	\$2.9258	\$1.3265
Steel Slab	\$2.6480	\$0.9496
Containerized Cargo	\$1.2142	\$0.8288
Government Aid	n/a	n/a

GRT Charge	MLO	Welland
Loaded or Ballast Vessels (excluding passenger ships)	\$0.1171	\$0.1874
Passenger ships	\$0.3514	\$0.5621

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Minimum Charge	MLO	Welland
Minimum charge per ship per lock transited for full or partial transit of the Seaway	\$30.31	\$30.31

Lockage Charge (per GRT)	MLO	Welland
Loaded or Ballast Cargo and Passenger Ships	N/A	\$0.3122
Maximum per vessel	N/A	\$4,367.00
Under the New Business Initiative, for cargo accepted as new business, a percentage rebate on the applicable cargo charges for the approved period	20%	20%
Under the Volume Rebate Initiative, a retroactive percentage rebate on cargo tolls on the incremental volume calculated based on the pre-approved maximum volume	10%	10%
Under the New Service Incentive Program, for New Business cargo moving under an approved new service, an additional percentage refund on applicable cargo tolls above the New Business rebate	20%	20%



What Does This Mean for a Load of Grain?

28,000 tonnes	MLO	\$ 20,888
Grain	WC	23,206
23,895 GRT	MLO	2,798
	WC	4,478
GRT Lockages	WC	7,460
TOTAL Seaway Costs		\$ 58,830

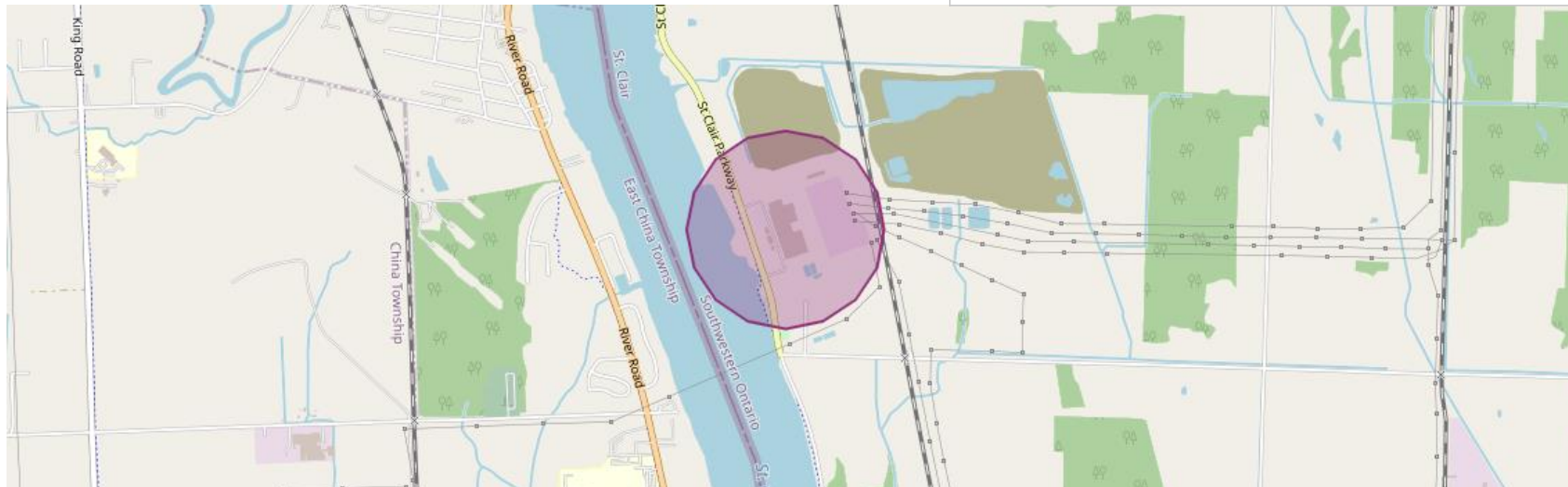


[Blasting for Lambton Generating Station set for February | Sarnia & Lambton County This Week](#)

After the original contractor for the job entered bankruptcy proceedings in 2020, work was temporarily halted until OPG brought in Deslan-A.I.M. to complete work on the former coal power electricity plant, which opened in 1969 and was closed in 2013.

www.sarniathisweek.com

Article of interest from Capt. Seann O'Donoughue



NOAA Unveils 2022 Hydrographic Survey Season Plans

February 14, 2022

Great Lakes

Western Lake Michigan – This project is located in Western Lake Michigan, within the [Wisconsin Shipwreck Coast National Marine Sanctuary](#). Previous charting efforts within the proposed 680 square nautical mile project extent were of lead line and singlebeam echo sounders from the mid-twentieth century. The area has never before been surveyed using multibeam echosounder systems.

Detroit River, Michigan – This project includes the entire 28-mile river area between Lake St. Clair and Lake Erie. This river is a critical transportation route connecting various ports along the Great Lakes, handling approximately 1,500 transits or 80 million tons of cargo annually.

Cleveland, Ohio – This project will provide modern bathymetric data for the Cleveland area as well as the vicinity of South Bass Island and Presque Isle. Conducting a modern bathymetric survey in this area will identify hazards and changes to the seafloor, provide critical data for updating NOAA's nautical charting products, and improve maritime safety.

Bone dry January drops some Great Lakes' water levels more than usual

It was a very dry and cold January across the Great Lakes' drainage basin. As a result, **all of the Great Lakes had declining water levels in January.** Three Great Lakes declined more than usual.

Lake Superior's water level declined 3 inches from December to January. The precipitation over the Lake Superior basin was only one inch, which is 56 percent of normal. Evaporation was also high due to cold air and dry air.

Lake Michigan and Lake Huron have the same lake level since the water flows freely through the Straits of Mackinac. **Lakes Michigan and Huron declined 4 inches in January, which is double the normal January water level fall.** Lake Michigan-Huron is still 11 inches above the long-term January average.

Lakes Michigan and Huron have fallen considerably from record high levels in 2020. The two lakes are 19 inches lower than last year at this time and 26 inches lower than the record levels in January 2020.

Read more and view graphs at this MLive link: <https://www.mlive.com/weather/2022/02/bone-dry-january-drops-some-great-lakes-water-levels-more-than-usual.html>

New Soo lock could lift Michigan's economy

January 31, 2022 [Pat Batcheller](#)

Army Corps of Engineers gets \$479 million to build a new lock in Sault Ste. Marie. Project officials say it would create hundreds of jobs.



“We anticipate the construction will create roughly 1,200 jobs per year,” she says. “And about 600 of those are direct jobs, most of which will be on site.”

Mollie Mahoney, new lock Project Manager, USACE says workers should complete construction by 2030.



New Lock

Poe
Lock

MacArthur
Lock

* Artistic Rendering

Heddle Shipyards fully booked for the winter



All three of Canadian shipbuilder Heddle Shipyards' Ontario Shipyards are fully booked for the 2022 winter works season

Port Weller – CCGS Amundsen, Seaway Bulker

Thunder Bay – Chi Cheemaun, Tim S. Dool

Hamilton – 7 Dockings including Simcoe Island II Newbuild

Winter work is keeping Ontario shipyards busy. Also, Heddle has purchased FabMar (steel fabricators and top side ship repairs in Thunder Bay.

[Photo: Heddle Shipyards]



February 2022 view of Port Weller Dry Docks (Heddle Marine with CCG Amundsen on the deep dock, and G3 Marquis (Algoma managed) on the “shelf” dock.

Note in front of drydock, level between Lock 1 and Lock 2 has been drained for Seaway winter maintenance.



**G3 Marquis
in Heddle
Marine
Drydock.**

Feb. 7, 2022.

Frank McPhee.

CSL's new self-unloader Nukumi leaves China for Canada



Photo courtesy The CSL Group Inc

Named Nukumi, the state-of-the-art self-unloading ship with a deadweight of 26,000 metric tons was built by Chengxi Shipyard in Jiangyin, China.

The vessel features a unique hull design, quieter machinery, a single point of loading system, and a shuttle boom, offering “a long-term, safe, sustainable, efficient and reliable shipping solution to the Magdalen Islands region,” where it will load deicing salt at Windsor Salt’s Mines Seleine mine and deliver it to stockpiles throughout Eastern Canada to help keep roadways safe during the winter season.

With its diesel-electric tier 3 engines and hull design, the vessel will contribute to cutting GHG emissions by about 25% with 80% fewer harmful air pollutants compared to traditional vessels servicing the same salt routes. It also features a ballast water treatment system to reduce the transfer of invasive species and noise reduction technology to protect North Atlantic right whales and other marine mammals in the Gulf of St. Lawrence.



CSL's new self-unloader Nukumi

**Newly built
Nukumi before
departing China
for service on
the St. Lawrence
Seaway.**

Feb. 11, 2022.

David Cooke.

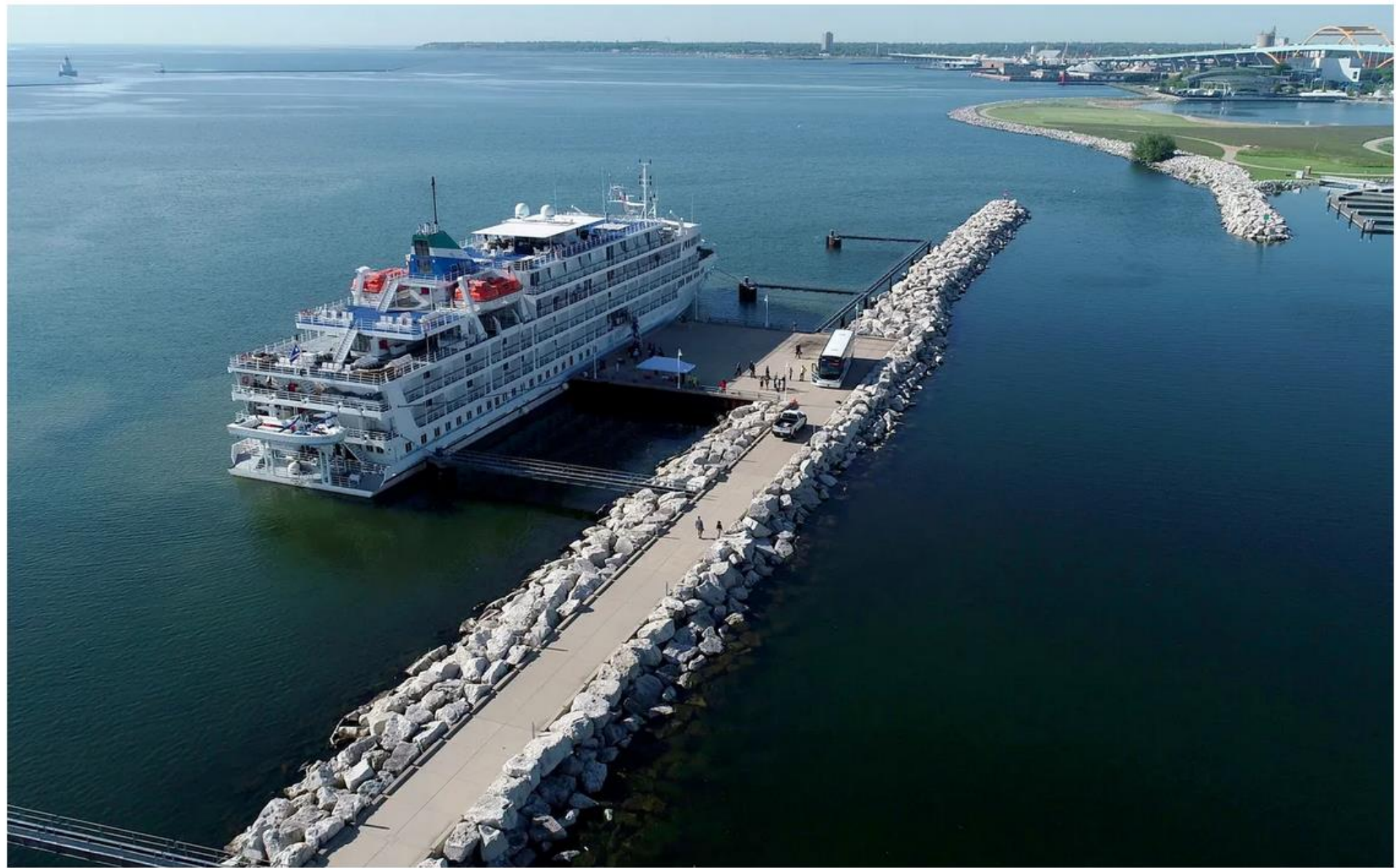


Cruise Ships Will be Back on the Great Lakes in 2022

Pearl Seas Cruises has a week-long trip that will take you into the waters of 4 of the 5 Great Lakes, with ports of call in Milwaukee, Holland, Muskegon, Mackinac Island, and Sault Ste. Marie, prior to four Canadian cities including the final destination of Toronto.

In January 2020, **Viking** announced **plans to bring a fleet of luxury cruise ships to the Great Lakes**. They're still on schedule for a 2022 launch and are booking 8-16 day vacations, including a 15-day, 2-country epic trek **across all 5 of the Great Lakes** from Toronto, Canada to Duluth, Minnesota including stops in Thunder Bay, Sault, Ste. Marie, Mackinac Island, and Niagara Falls.

Read More: [Cruise Ships Will be Back on the Great Lakes in 2022](https://wrkr.com/cruise-ships-great-lakes-2022/?utm_source=tsmclip&utm_medium=referral) | https://wrkr.com/cruise-ships-great-lakes-2022/?utm_source=tsmclip&utm_medium=referral



An increase in cruise ship traffic at Port Milwaukee is driving \$6 million in additional improvements to accommodate it.
Mike De Sisti And Jim Nelson

Vacation Ships on Great Lakes

THUNDER BAY — Beginning in late May, the Thunder Bay cruise ship port will be bustling with travellers arriving on the Viking Expeditions' Viking Octantis and the American Queen Voyages' Ocean Navigator passenger vessels.

Paul Pepe, manager of tourism for the city, says the arrival of the cruise ships will mark the first time Thunder Bay has seen passenger ships in more than nine years. The Octantis will arrive for seven turnarounds this summer and the Navigator will visit twice.

The 378-passenger vessel is very luxurious and at 665 feet long, it is the largest cruise ship ever in the Great Lakes, in the history of the Great Lakes," said Pepe. "It's absolutely beautiful and it's an ice-class polarized vessel."





Interlake Maritime Services is new parent company of Original Soo Locks Boat Tours

Interlake Maritime Services' new subsidiary Soo Maritime Services has acquired the assets of the American & Canadian Lock Tours which include the tour boats Hiawatha, Bide-A-Wee and Holiday that provide river and lock tours. A third-generation business owned and operated by the Welch family, the Original Soo Locks Boat Tours has been a popular tourist attraction in the Soo since 1934, and will continue as usual under the new ownership. Interlake Maritime Services also operates the Lake Michigan Carferry SS Badger and the Interlake Steamship Co.



**NACC Quebec
and Algoscotia
side by side in
Las Palmas in
the Canary
Islands.**

Algoma Central



MONTREAL, Feb. 2, 2022 /CNW Telbec/ - The Board of Directors of the Shipping Federation of Canada is pleased to announce the appointment of Christopher Hall as President, effective February 14, 2022.

Chris is an experienced transportation professional with deep roots in the maritime community. As Vice President of Operations and Harbour Master at the Saint John Port Authority, Chris oversaw all aspects of port activity, led on marine policy and advocacy issues, and was responsible for service delivery overall. Chris also served as the port's Interim President from July to November of last year, providing leadership through an important transitional period and ensuring the advancement of planned strategic initiatives. Prior to joining the Port of Saint John, Chris spent ten years with Atlantic Towing, where he held management roles in operations and commercial activities. He is a Master Mariner and a graduate of the Canadian Coast Guard College, and holds management certificates from Western and Queens Universities.

Past National Master – The Company of Master Mariners of Canada.

HOPA Ports 2021 port activity

Published by Jessica Casey, Editorial Assistant
Dry Bulk, Friday, 04 February 2022 12:00

HOPA Ports saw a total of 11.2 million tonnes of cargo through Hamilton and Oshawa during 2021, up 9% from the same time period the previous year. A total of 678 vessels visited its two ports during the 2021 season, 600 in Hamilton, and 78 in Oshawa.

HAMILTON Port recorded 10.8 million tonnes this past season; surpassing 2020's total by almost 1 million, and climbing 6% ahead of its five-year average. Hamilton continues to see growth of agriculture-related commodities, driven by increases in wheat, corn, fertilizer and a 91% increase this year in raw sugar, and gains in petroleum, sand, quartz, slag and finished steel. Overseas cargo tonnages increased 35% .



OSHAWA PORT Poised for Growth in 2022.

Though Oshawa saw a slight decrease from its overall, all-time record total in 2020; the port did see increases in fertilizer and finished steel in 2021, and its total is still 3% above the five-year average. HOPA plans to build on Oshawa's current cargo levels by upgrading its port facilities and infrastructure in the coming years, namely, increasing capacity for agricultural cargoes and the port's allowable draft.



Earlier in 2021, HOPA announced its expansion into NIAGARA REGION. In partnership with local municipal leaders, HOPA launched the Niagara Ports plan for a suite of new properties in Thorold and along the Welland Canal. By lending its expertise in developing marine-industrial lands, HOPA has already been able to attract new industrial partners to the Thorold Multimodal Hub, like TORA Inc. and Canadian Maritime Engineering.



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Port Colborne advocating for marine strategy in pre-budget submission to province



Article to be of interest from Capt. Bret Maukonen.

Port Colborne joined other Ontario cities and towns, and key stakeholder groups including the Chamber of Marine Commerce, in recommending that the province create an Ontario Marine Transportation Strategy and establish an Ontario Marine Secretariat to develop a policy and funding framework.

The Province of Ontario does not have a marine strategy or related funding for cities and towns with ports to maintain port and harbour infrastructure for safety and security; to support recreational and commercial boating traffic; attract investment and tourism; promote waterfront revitalization; and help facilitate marine industrial growth.



SHIP SAFETY BULLETIN

Bulletin No.: 03/2022
RDIMS No.: 18296437
Date: 2022-02-07
Y - M - D

We issue Ship Safety Bulletins for the marine community. Visit our Website at www.tc.gc.ca/ssb-bsn to view existing bulletins and to sign up to receive e-mail notices of new ones.



Sign up for
e-Bulletin!

Subject: Temporary Measures Regarding Marine Medical Certificates –
February 2022

Purpose

This Bulletin provides temporary measures pertaining to marine medical certificates implemented during the ongoing global COVID-19 pandemic.

Scope

This Bulletin applies to:

- Canadian seafarers who hold a marine medical certificate (whether a Provisional Medical Certificate issued under section 275 of the *Marine Personnel Regulations*; or a medical certificate issued by the Minister under section 278 of the *Marine Personnel Regulations*, hereinafter referred to as “Marine Medical Certificate”); and
- Authorized Representatives of Canadian-flagged vessels.

What you need to know

For seafarers who require a medical certificate to obtain or maintain a certificate of competency to work on board a vessel, a Marine Medical Certificate that otherwise would have expired on or after February 1, 2022 but before April 1, 2022, is granted, regarding their **Marine Medical Certificate**, an extension of 2 months. There is no requirement to submit an application to obtain this extension.

If your marine medical certificate is set to soon expire, we recommend you see a Transport Canada designated Marine Medical Examiner at your earliest opportunity.

Keywords:

1. Medical Certificate
2. Extension
3. Covid-19

Questions concerning this Bulletin should be addressed to:

AMSP
Transport Canada
Marine Safety and Security
Tower C, Place de Ville
330 Sparks Street, 8th Floor
Ottawa, Ontario K1A 0N8

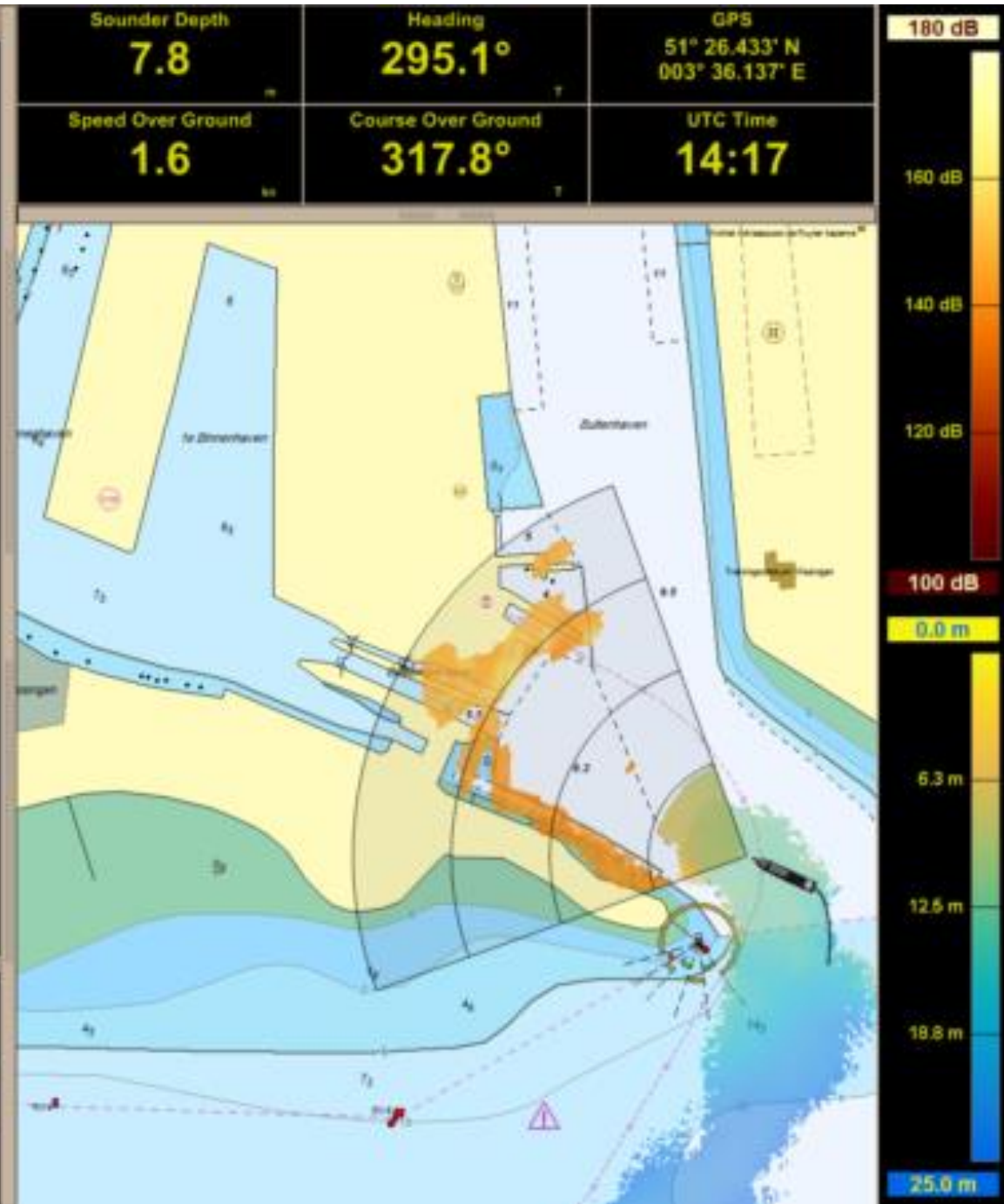
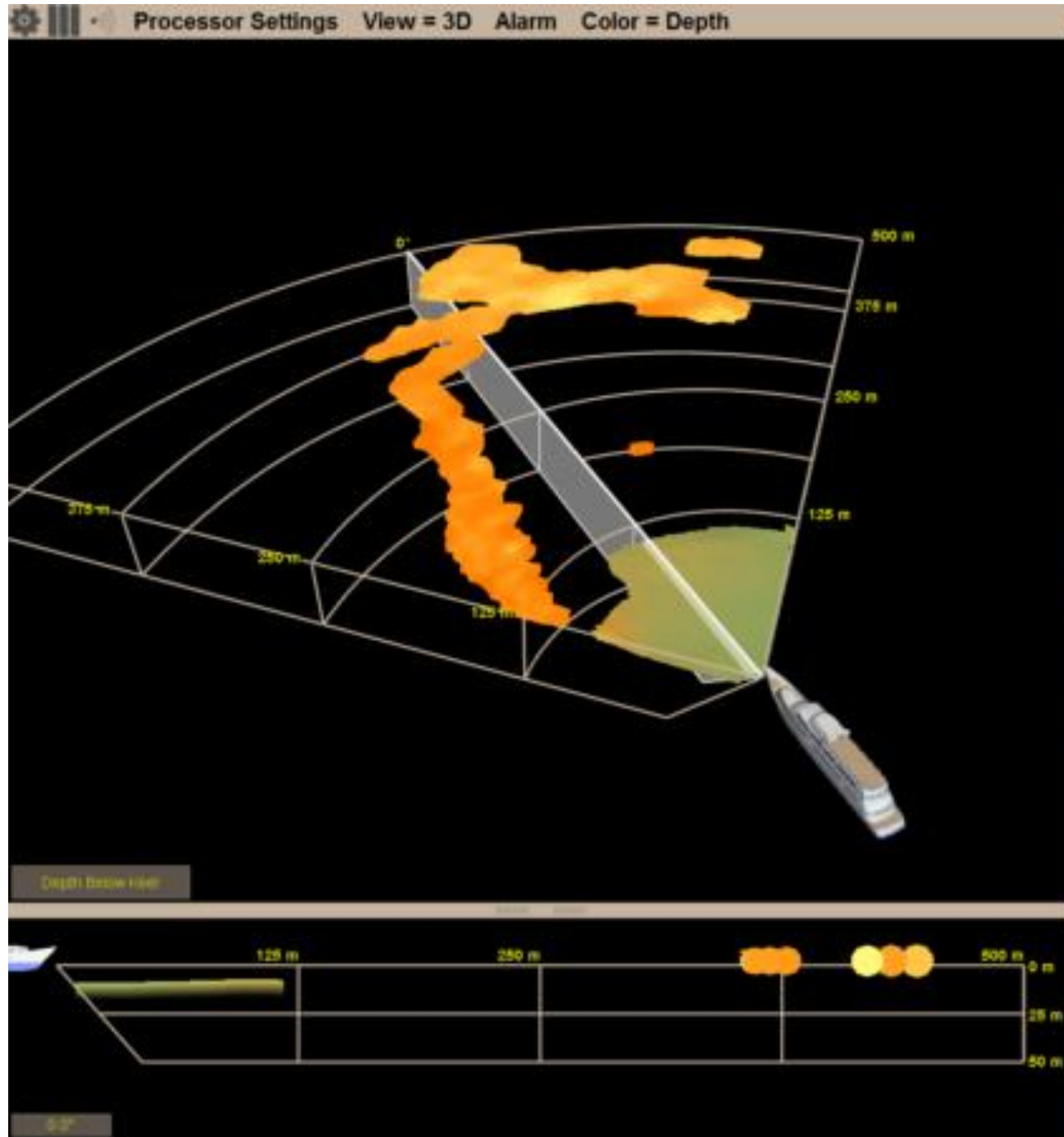
Contact us at: marinesafety-securitemaritime@tc.gc.ca or 1-855-859-3123 (Toll Free).

British Antarctic Survey's *Sir David Attenborough*



Relying heavily on chart data and standard navigation tools for safe navigation is risky. Vessels will find themselves in dangerous situations due to lack of data. This is particularly relevant in polar regions. These areas are poorly charted at best and at worst are mostly uncharted territories

Some operators have found Argos Forward Looking Sonars can give them the clear situational awareness they are striving for.



Presentation on New Paint Technology given to CMMC Maritimes Division – Feb. 9, 2022



Master Mariners of Canada – February 2022



GRAPHITE
INNOVATION & TECHNOLOGIES





XGIT-Fuel — The World's Most Sustainable Marine Coating

WHAT

To supply the most environmentally friendly and most efficient underwater coatings technology in the marine market.

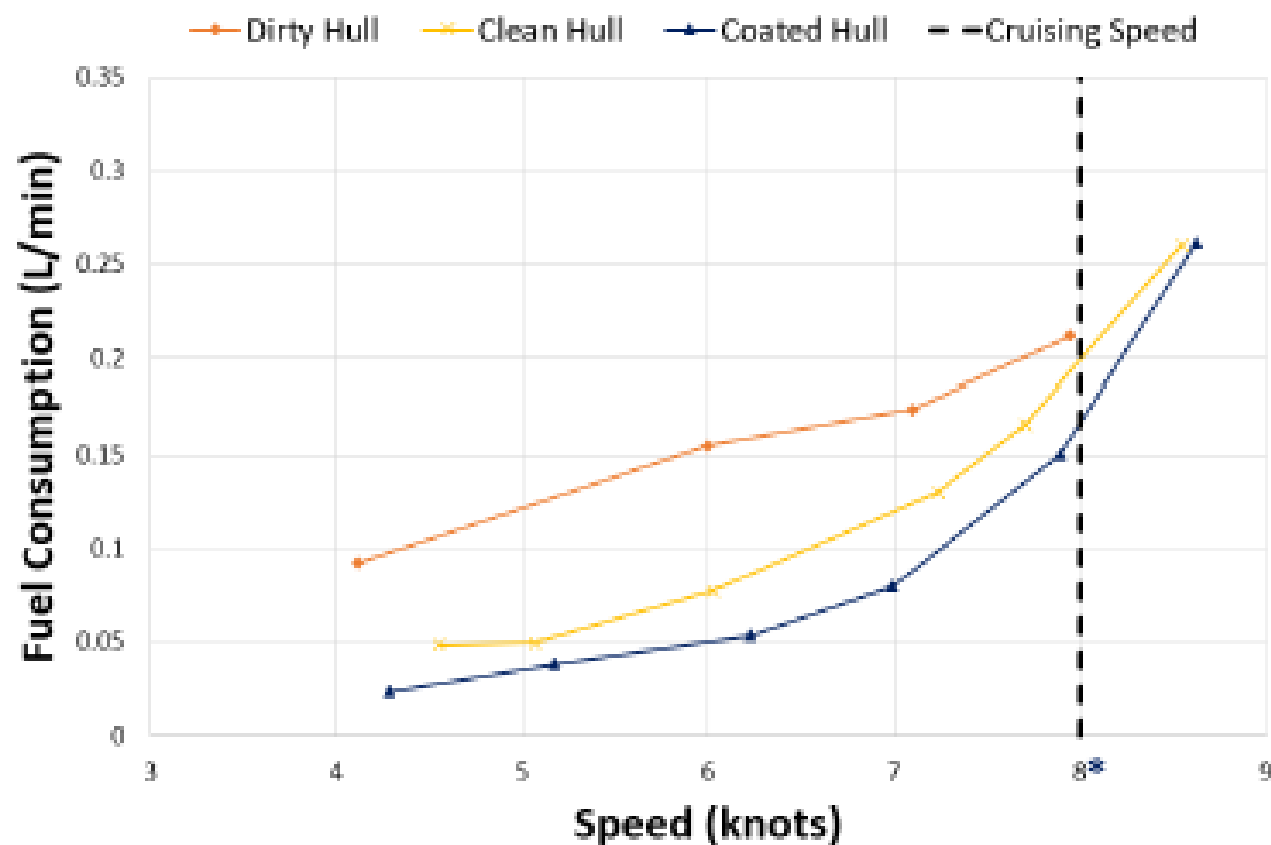
HOW

Practical application and commercialization of leading edge materials science technology.

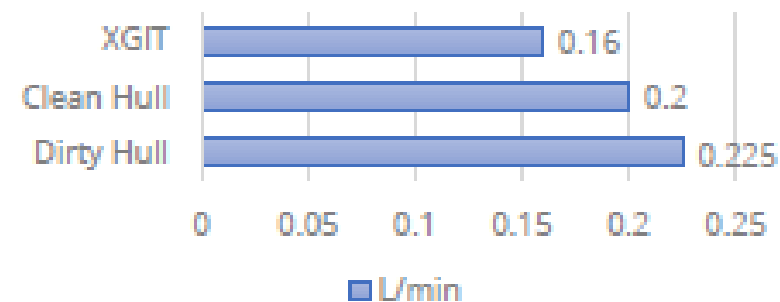




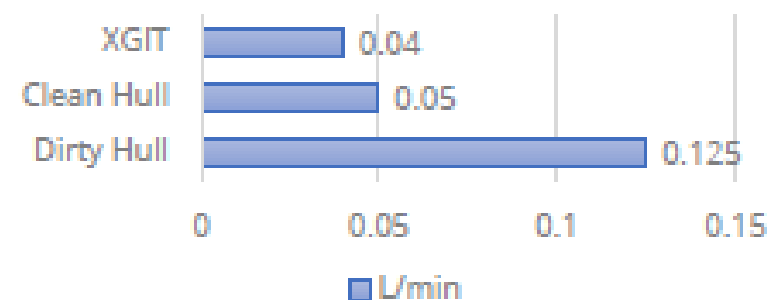
Field Data — Fuel Consumption



L/min @ Cruising Speed



L/min @ Slow Speed





Prepare for EEXI 2023 with a Sustainable Approach



Low Surface
Roughness



Reduced fuel
Consumption



Overall Cost
Savings

Application
of XGIT-
product line



Reduced noise
radiation

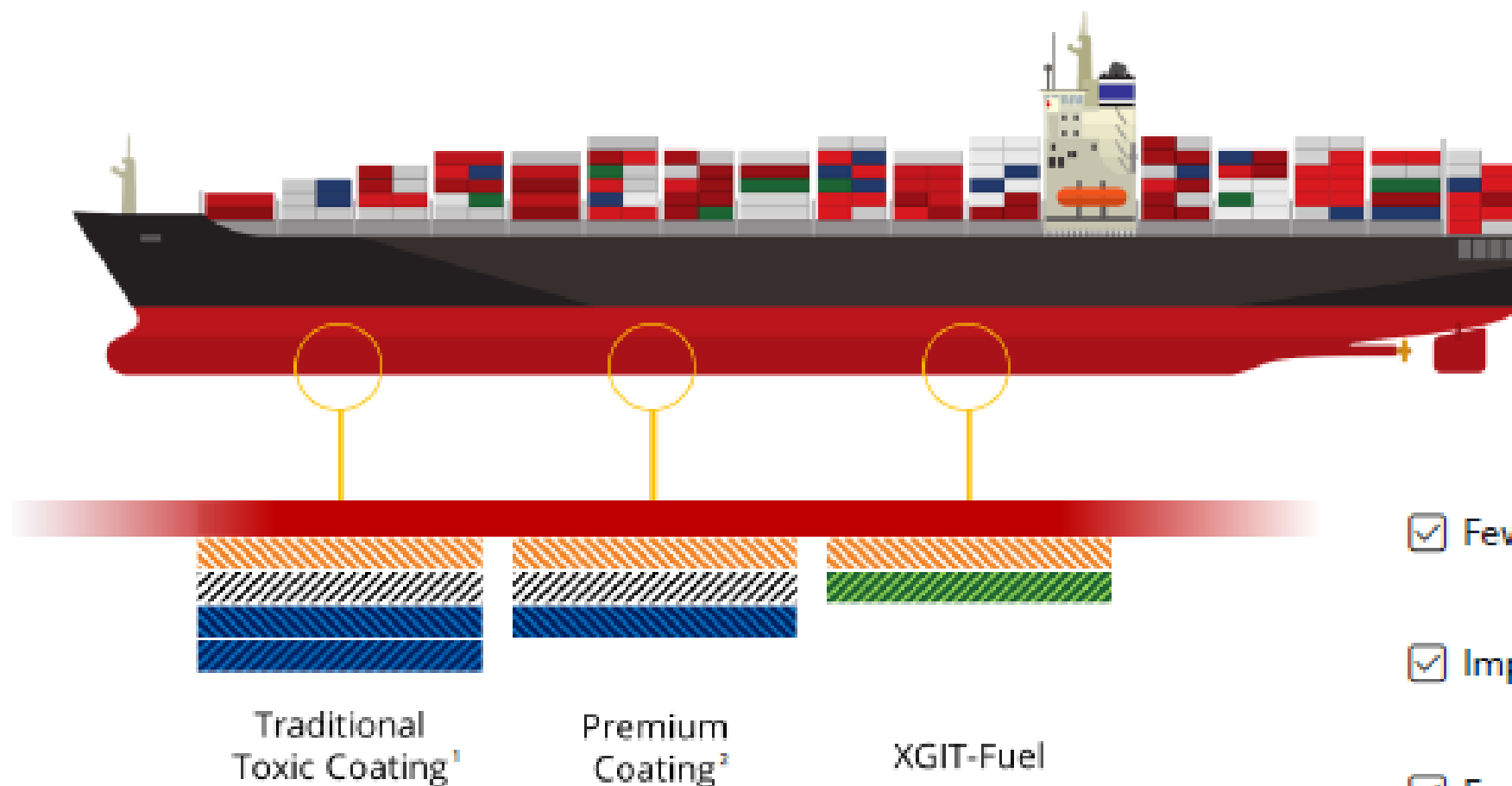


Lower GHG
emissions





Competitive Advantages



- ✓ Fewer layers needed
- ✓ Improved dry dock times
- ✓ Easy to apply





Recent Updates

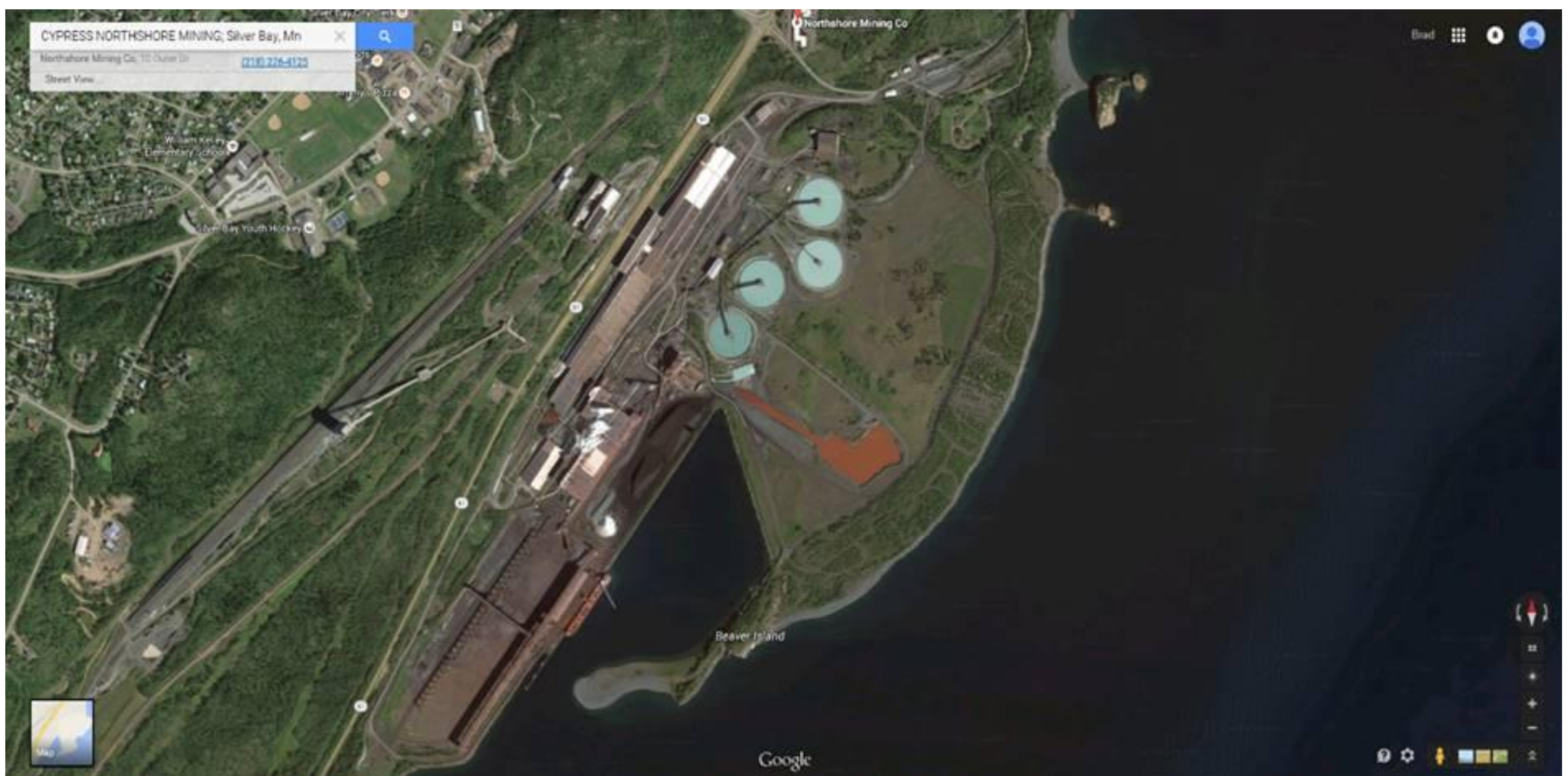
- New data from University of Strathclyde
 - Coefficient of friction, drag testing
 - Dr Yigit Kemal Demirel (IMO Advisor)
- Awarded contract for TransMountain project
 - KOTUG Canada
- Accepted to TechStars Singapore
 - Relationship with Eastern Pacific Shipping
- Accepted to Paint The Future – AkzoNobel
- Oceanex Sanderling pilot project
 - Damen Shipyard, January 2022
 - New partners added to Ocean Supercluster program
 - Oceanex
 - Baffin Fisheries
- Agreement signed with Stolt Tankers





This year, U. S. Great Lakes companies will invest nearly \$83 million in their vessels moored in New York, Ohio, Wisconsin, and Pennsylvania. That translates into jobs for hundreds of workers in these Great Lakes states. Wisconsin shipyards will get \$41 million in work, Ohio \$37 million, Pennsylvania \$4 million, and New York \$1 million.

LCA



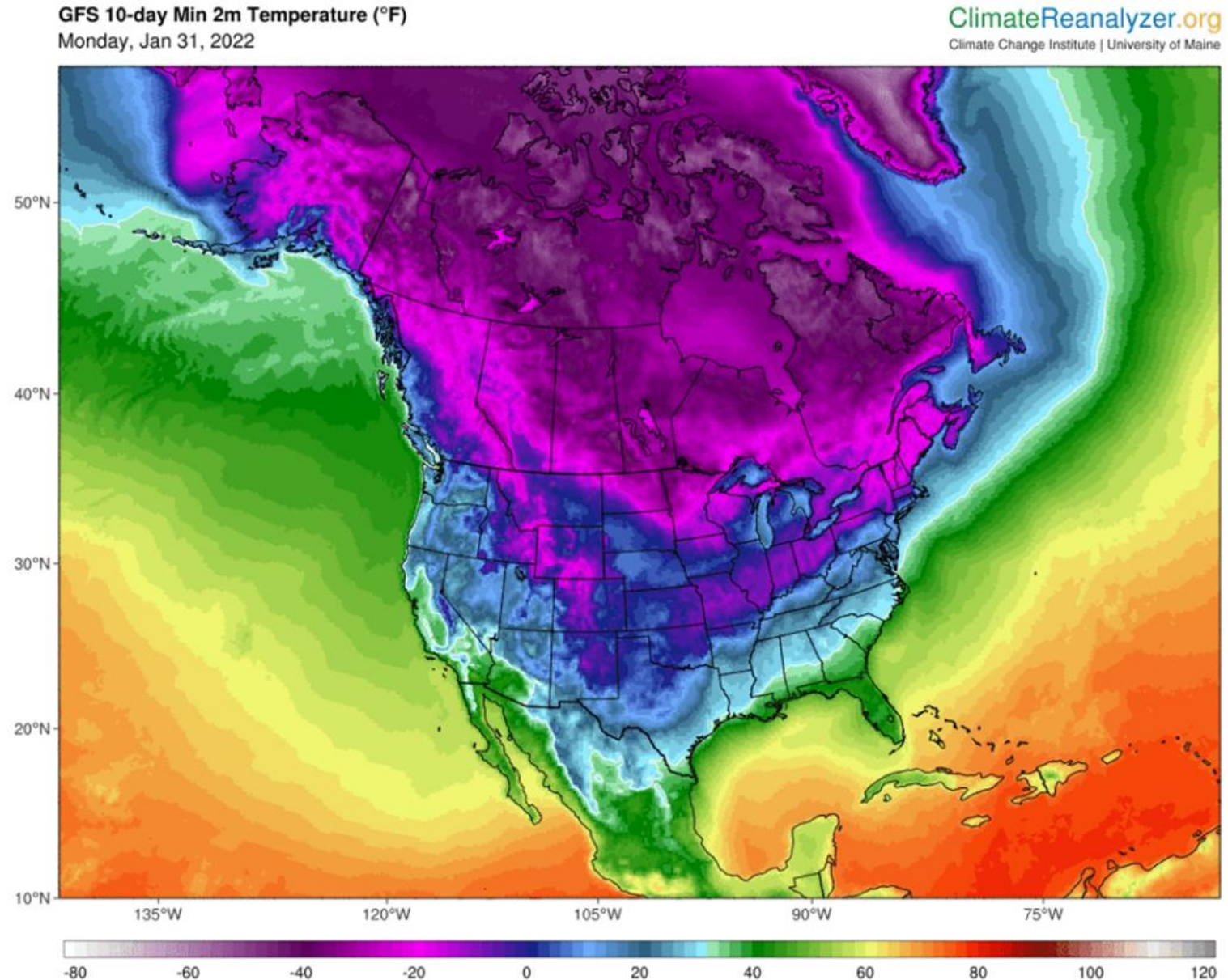
Cliffs to idle Northshore Mining in the spring

Silver Bay, MN – Cleveland-Cliffs announced on Friday that the company is going to idle Northshore Mining in the spring, and it could go into the fall or beyond. Northshore's mine is in Babbitt, and the pellet plant is in Silver Bay. Nearly 600 people work between the two.

Polar Vortex Spikes Great Lakes Ice Cover (2022)

January 31, 2022 by [Michael Hardy](#)

Recent extreme weather patterns and sub-zero conditions across the Upper Great Lakes region have blown away forecasts of yet another year of below-average ice cover. The recent polar vortex spikes Great Lakes ice cover. Currently, four out of the five Great Lakes are significantly above [average reported ice concentration data](#) (1973-2021) Except for Lake Superior which is near its average ice coverage norm for this date in the year.



As of January 30th, NOAA_GLERL chart data is showing the reported ice coverage average for this date in the winter for each of the Great Lakes.

- Ice coverage of Lake Michigan at 34%, above the historical average of 23%.**
- Ice cover on Lake Erie stands at ~86% way above the historical average of 54%**
- Lake Huron at ~50%, significantly above the historical average of 40%**
- Lake Superior's ice cover stands at 24% near average for this day in the year.**
- Lake Ontario ice coverage stands at 27% above its norm of 14% this time of year.**

The average annual maximum ice cover (since 1973) is 54.5%.

GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)



Analysis Date: JD 045 02/14/2022

Percent Pixels with Data within +/-10 Days: 64.6%

Date of last ice analysis: 2/13/2022

NOAA CoastWatch

Great Lakes Total Ice Cover: 41.8%

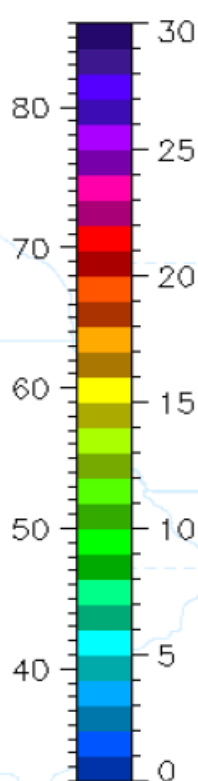
Duluth

Marquette

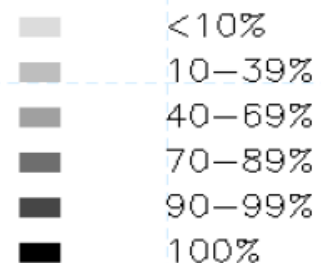
Sault Ste. Marie

Water Temperature

°F °C



Median Ice Concentration



Alpena

Green Bay

Milwaukee

Muskegon

Chicago

Detroit

Toledo

Cleveland

Toronto

Buffalo

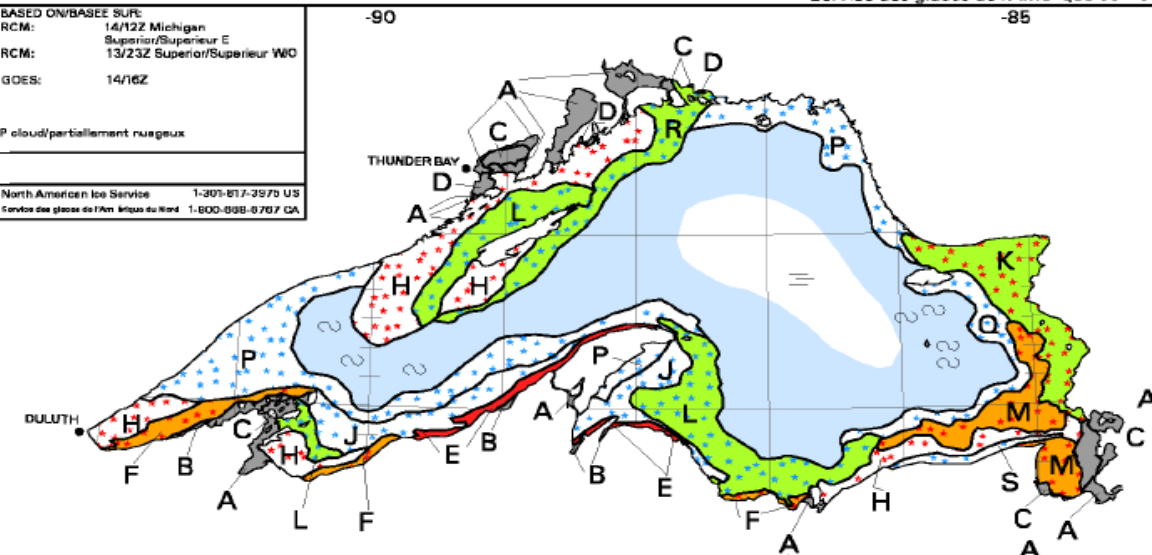
Great Lakes Environmental Research Laboratory
National Ice Center

AVG Cloud Free - Superior: 1.3 %, Michigan: 1.9 %, Huron: 2.5 %, Erie: 0.0 %, Ontario: 15.1 %, St Clair: 0.0 %

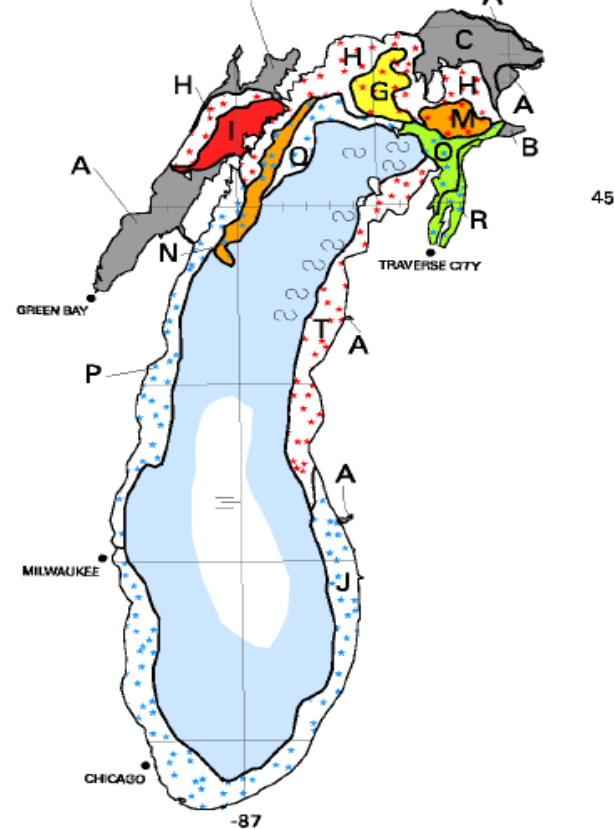
BASED ON/BASÉE SUR:
 RCM: 14/12Z Michigan
 Superior/Superieur E
 RCM: 13/23Z Superior/Superieur WO
 GOES: 14/16Z

P cloud/partiellement nuageux

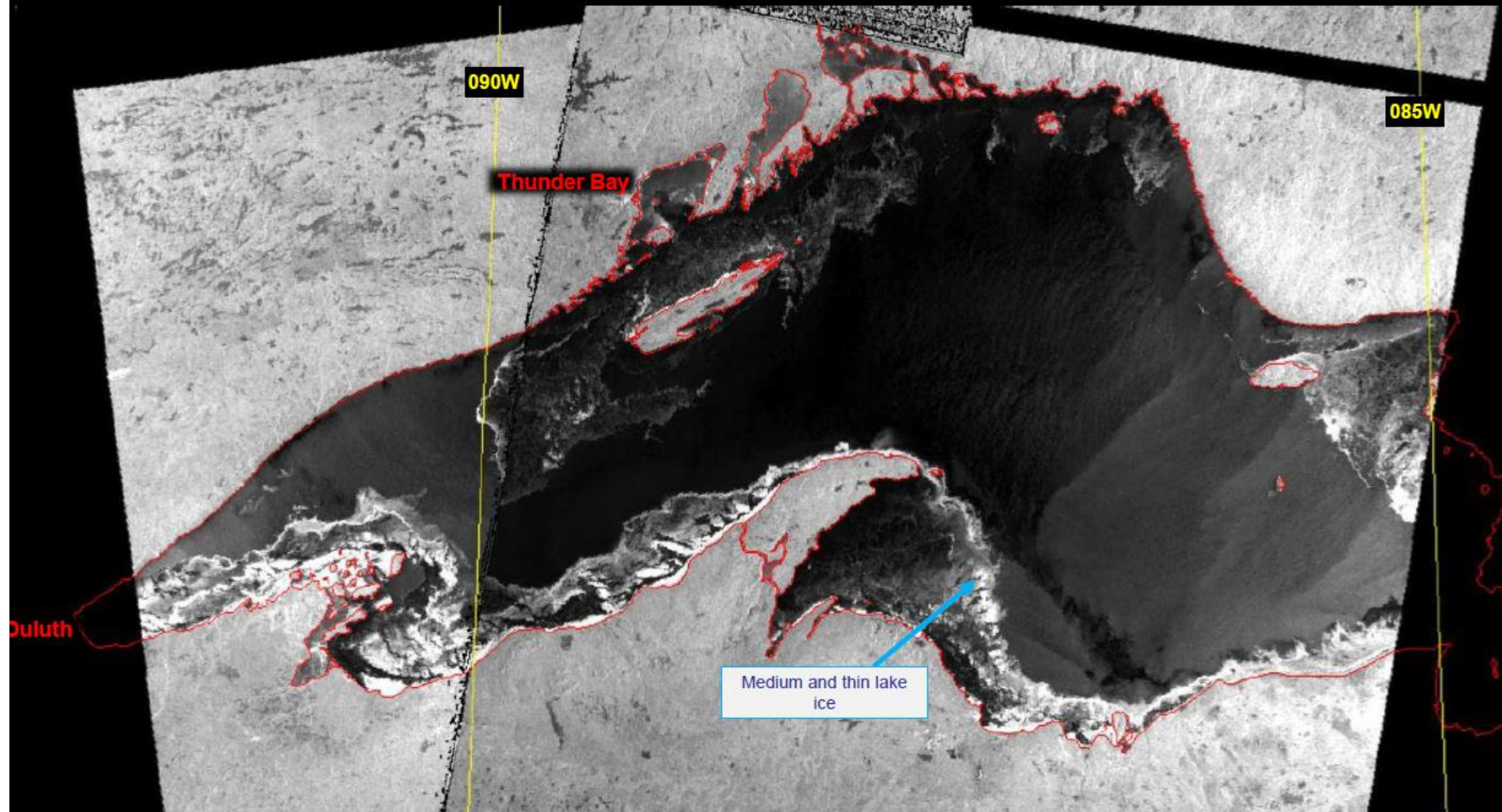
North American Ice Service 1-800-817-2970 US
 Service des glaces de l'Am. du Nord 1-800-898-8767 CA



A	10	B	10	C	10	D	10
7		5		5 5		5 5	
8		8		7 5		5 4	
				5 8		4 8	
E	9+	F	9+	G	9+	H	9+
5		7 3		6 4		6 4	
4		5 4		5 4		4 1	
		4 4		4 4		3 X	
I	9+	J	9+	K	9+	L	9+
5 5		4 6		3 6 1		2 3 5	
7 5		4 1		5 4 1		5 4 1	
5 4		3 X		4 3 X		4 3 X	
M	9+	N	9	O	8	P	7
1 6 3		4 3 2		1 2 2		1	
7 5 4		7 5 1		7 5 4		X	
5 4 3		5 4 X		5 5 4			
Q	5	R	5	S	2	T	2
1		1 1 3		1		1 1	
X		5 4 1		X		4 1	
		4 3 X				3 X	



Lake Superior
February 15, 2022
1231Z
RCM



Lake Michigan
February 15, 2022
1201Z
RCM

Thick & medium lake ice

Escanaba

45N

85W

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-83

O	8
	2 6
	5 4
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P	8
	1 2 2
	7 5 4 1
	5 5 4

Q	7
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R	5
	1
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S	5
	2 3
	5 4
	4 3

T	5
	1 1 3
	5 4 1
	4 3 X

U	2
	1
	X

V	2
	1 1
	4 1
	3 X

A	10
	7
	8

B	10
	5
	8

C	10
	5 5
	7 5
	5 8

D	10
	5 5
	5 4
	4 8

E	9+
	7 3
	5 4
	4 4

F	9+
	6 4
	5 4
	4 4

G	9+
	6 4
	4 1
	3 X

H	9+
	5 5
	7 5
	5 4

I	9+
	4 6
	5 4
	4 4

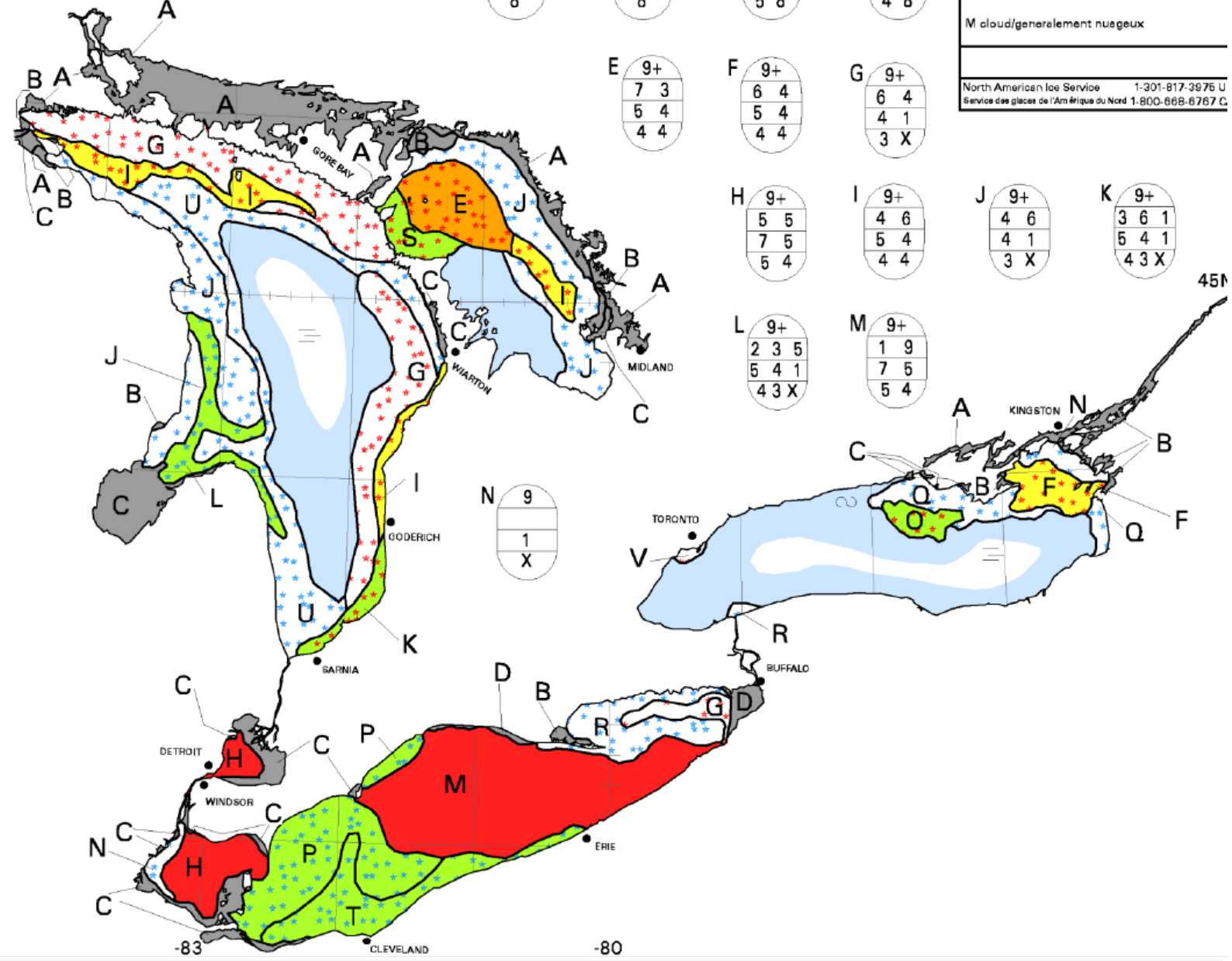
J	9+
	4 6
	4 1
	3 X

K	9+
	3 6 1
	5 4 1
	4 3 X

L	9+
	2 3 5
	5 4 1
	4 3 X

M	9+
	1 9
	7 5
	5 4

N	9
	1
	X



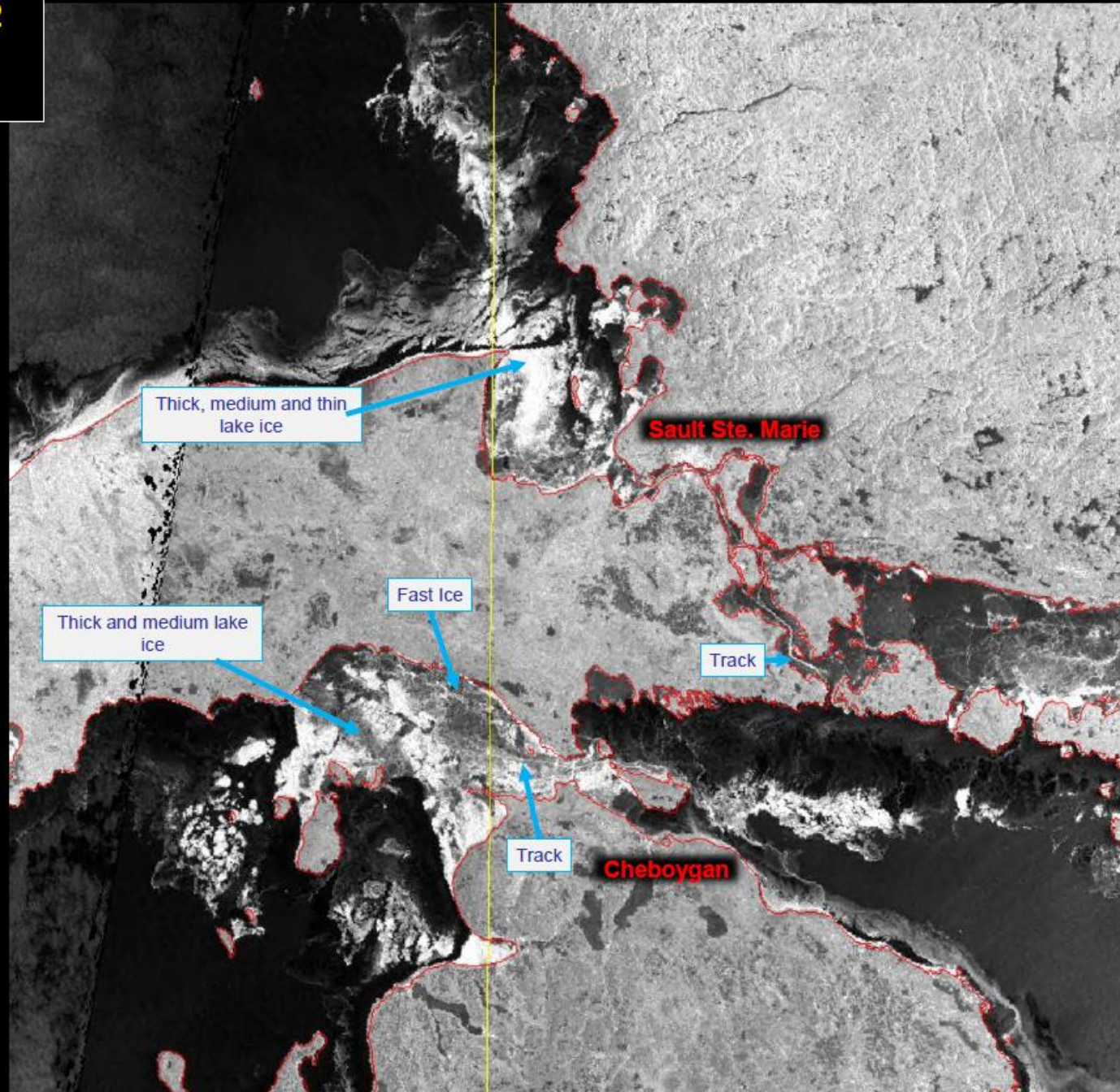
BASED ON/BASEE SUR:
RCM: 14/11Z Ontario
RCM: 13/23Z Erie E
Huron E off/de 8130W
GOES: 14/16Z Huron
Erie
M cloud/generalement nuageux
North American Ice Service 1-301-817-3976 U
Service des glaces de l'Amérique du Nord 1-800-668-6767 C

-83

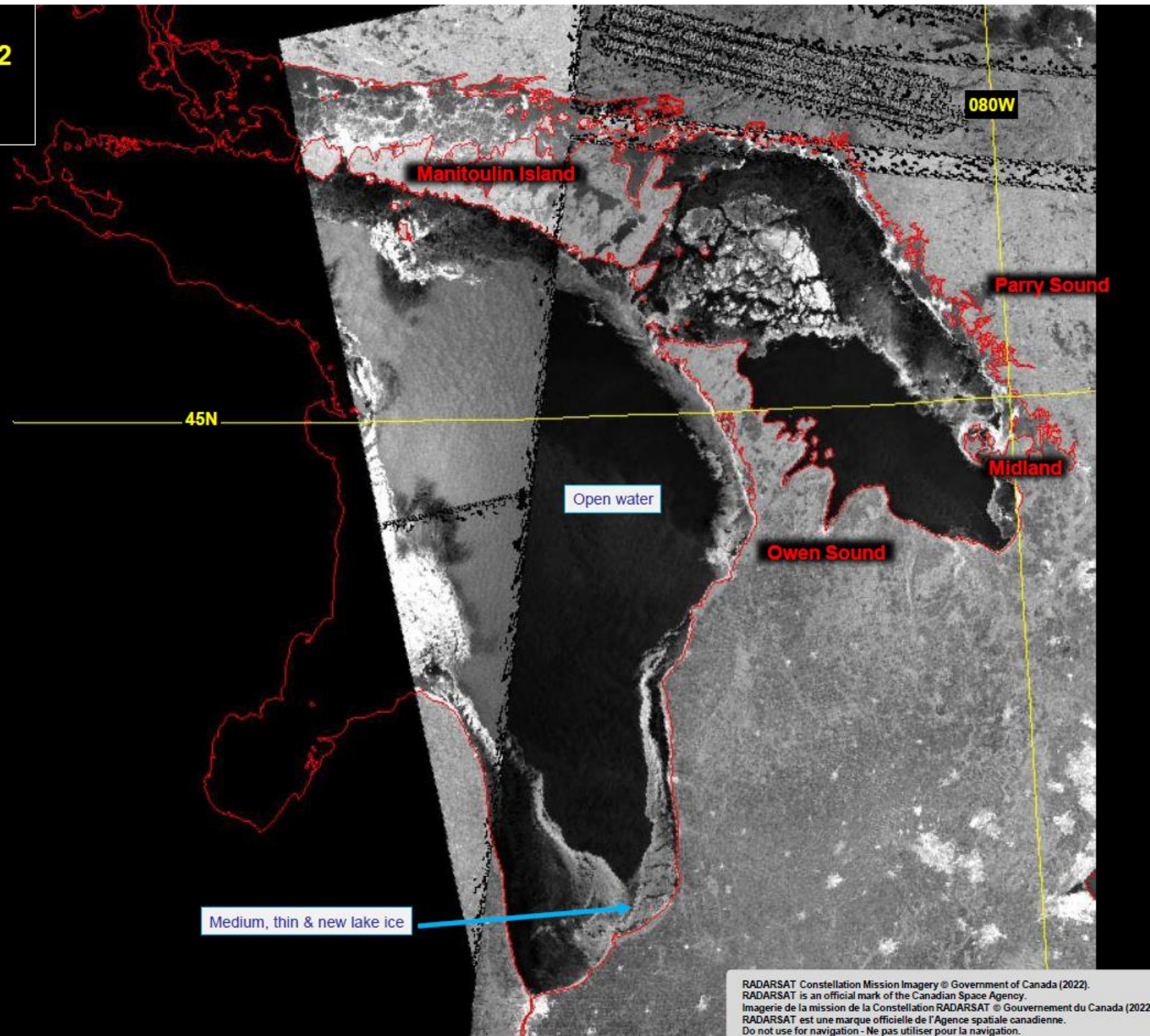
-80

45N

Straits of Mackinac
February 13, 2022
1144Z
RCM



Lake Huron
February 15, 2022
1129Z
RCM



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Lake Erie – Lake St. Clair
February 15, 2022
1128Z
RCM

