

APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH

1. General Information

1.1 Cruise name and/or number:	LSSL 2025 - Transit Iceland
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1.2 Sponsoring institution(s):		
Name	Address	Name Of Director
UNCLOS Program Geological Survey of Canada Natural Resources Canada	1 Challenger Drive Bedford Institute of Oceanography Dartmouth, Nova Scotia B2Y 4A2 Canada	Dr. Mary-Lynn Dickson

1.3 Scientist in charge of the project:	
Name: Sheila Hynes	
Country: Canada	
Affiliation: Geological Survey of Canada Natural Resources Canada	
Address: 1 Challenger Drive, Dartmouth, NS B2Y 4A2	
Telephone: +1 782-641-3602	
Email: sheila.hynes@nrcan-rncan.gc.ca	

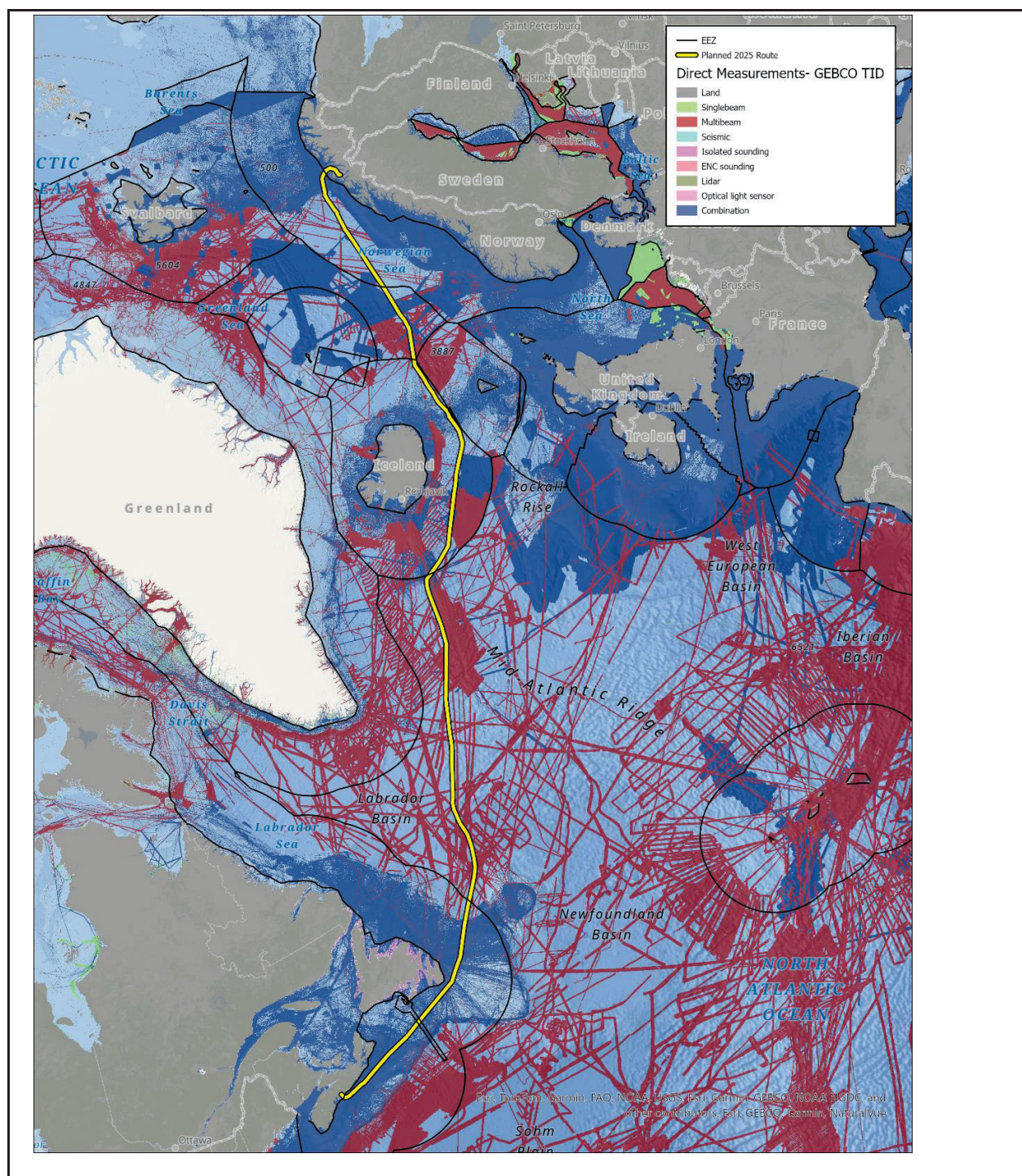
1.4 Entity(ies) /Participant(s) from coastal State involved in the planning of the project:	
Name: Mr. David Sinnott	See Section 6.2
Country: Canada	
Affiliation: Fisheries and Oceans Canada Canadian Hydrographic Service	
Address: Northwest Atlantic Fisheries Centre 80 East White Hills St John's, Newfoundland and Labrador A1C 5X1	
Telephone: +1 709-725-8045	
Fax: N/A	
Email: dave.sinnott@dfo-mpo.gc.ca	
Website (for CV and photo): CV and photo are provided in Section 11 of this application	

1.5 Submitting officer:	
Name: Dr. Mary-Lynn Dickson	
Affiliation: Geological Survey of Canada	

Natural Resources Canada	
Address: 1 Challenger Drive, Dartmouth, NS B2Y 4A2	
Telephone: +1 902-401-7171	
Fax: N/A	
Email: mary-lynn.dickson@nrca-nrcan.gc.ca	

2. Description of Project

2.1 Nature and objectives of the project:
Canada is conducting bathymetric and geological surveys in the central Arctic Ocean to define the extent of its continental shelf beyond 200 nautical miles. Surveys are planned in 2025, 2026 and 2027. The surveys will be conducted using the <i>CCGS Louis S. St-Laurent</i> and the Swedish icebreaker <i>RVIB Oden</i>, with the <i>RVIB Oden</i> providing icebreaking support. Hydrographic and geophysical measurements in the central Arctic Ocean will be made from <i>CCGS Louis S. St-Laurent</i> on Alpha Ridge and Mendeleev Rise to 1) establish their continental provenance, 2) show they are a seafloor elevation, that together with Lomonosov Ridge, form a coalesced Central Arctic Plateau, and 3) establish that the Central Arctic Plateau is a natural prolongation and a natural component of the Canadian landmass. Danish scientists in the Geological Survey of Denmark and Greenland will participate on the planned survey aboard the <i>RVIB Oden</i>. Data will be shared through a Cooperation Agreement and Task Shared Agreement between the Geological Survey of Canada and the Geological Survey of Denmark and Greenland. The survey in the Arctic Ocean will require the <i>CCGS Louis S. St-Laurent</i> to transit from Dartmouth, Nova Scotia to Tromsø, Norway, crossing the Exclusive Economic Zone of Iceland. Permission is requested from Iceland to acquire bathymetric and sub-bottom data along the transit using a multibeam echosounder and a sub-bottom profiler. Both instruments are hull-mounted on the vessel. Four hydrographers with the Canadian Hydrographic Service in Fisheries and Oceans Canada will participate on the transit to operate the two instruments. This marine scientific research will be conducted to increase knowledge of the Atlantic Ocean further to the Galway Statement on Atlantic Ocean cooperation signed by the EU, Canada, and the US on 24 May 2013 and the follow on All-Atlantic Research and Innovation Alliance (AAORIA). In 2022, the “All-Atlantic Declaration” was signed to revitalize collaboration among current initiatives and enhance the coordination between the Galway Working Groups, All-Atlantic Joint Pilot Actions, and related projects. The UNCLOS Program will also contribute data to the Ocean Decade Alliance’s Seabed Mapping Initiative, the General Bathymetric Chart of the Oceans (GEBCO), and the International Bathymetric Chart of the Arctic Ocean (IBCAO). The planned route between Dartmouth, Nova Scotia, Canada and Tromsø, Norway is shown in the following map as the yellow line, along with existing types of bathymetric data that are publicly available in the GEBCO database.



2.2 Relevant previous or future research projects:

Previous MSR applications in 2015 and 2016 were approved for transits of the *CCGS Louis S. St-Laurent* between Dartmouth, NS, Canada and Tromsø, Norway through Iceland's Exclusive Economic Zone. Data that were acquired were filed with the appropriate department(s) in Iceland.

Applications for future marine scientific research during transits will be submitted for consideration in 2026 and 2027.

2.3 Previous publications relating to the project:

None

3. Geographical Areas

3.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude, including coordinates of cruise track/ way points):

Bathymetric and sub-bottom data will be collected along the transit from Dartmouth, Canada to Tromsø, Norway from the *CCGS Louis S. St-Laurent*:

Latitude, Longitude

61.051121,-27.680157 **Entry point into Iceland's EEZ**

60.985204,-26.164794

60.964783,-24.218796

61.033663,-23.880823

61.154407,-23.294898

61.212949,-22.957327

61.280474,-22.560219

61.666798,-20.103510

61.689897,-19.945078

61.876425,-18.607403

61.929120,-18.112061

62.112563,-16.795721

62.245697,-14.867057

62.259236,-14.596892

62.270597,-14.361608

62.281142,-14.135377

62.314201,-13.688829

62.333071,-13.487759

62.535540,-12.858398

62.620542,-12.574973

62.665240,-12.417673

62.710881,-12.290909

62.936442,-11.894126

63.076578,-11.658931

63.275074,-11.329320

63.381848,-11.149714

63.483533,-10.704196

63.742544,-10.365557

63.880013,-10.191589

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64.134794,-9.819976

64.175959,-9.743089

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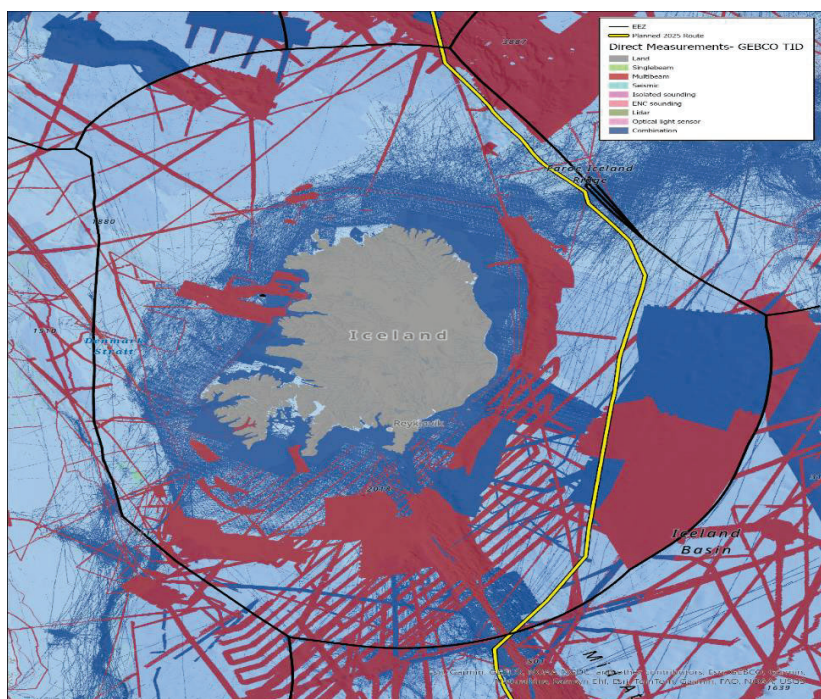
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64.993093,-7.857964
 65.077496,-7.662591
 65.134103,-7.523385
 65.406219,-6.914781
 65.692880,-6.260836
 65.789363,-5.575047 **Exit point from Iceland's EEZ**

3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical areas of the intended work and, as far as practicable, the location and depth of sampling stations, the tracks of survey lines, and the locations of installations and equipment.

Iceland EEZ with Planned 2025 Transit (yellow line) of the *CCGS Louis S. St-Laurent* and a Summary of Direct Water Depth Measurements Available via the General Bathymetric Chart of the Oceans (2024). Coordinates provided in Section 3.1.



4. Methods and Means to be Used

4.1 Particulars of Vessel:	
Name:	Canadian Coast Guard Ship <i>Louis S. St-Laurent</i>
Type/Class:	LR +100A1 Icebreaker +LMC
Nationality (Flag state):	Canada
Identification Number (IMO/Lloyds No.):	6705937
Owner:	Government of Canada
Operator:	Canadian Coast Guard
Overall length:	119.6 m
Maximum draught:	9.73 m

Displacement/Gross tonnage:	Tonnage: 11,345 GT · 3,403 NT · 4,640 DWT
Propulsion:	Diesel-electric
Cruising:	15 knots
Maximum speed:	18 knots
Call sign:	CGBN
INMARSAT number and method and capability of communication (including emergency frequencies):	Iridium: 011-881-651-422-642 (Telephone) Email: LouisStLaurentWH@ccgs-ngcc.gc.ca
Name of master:	Captain Byron Briggs
Number of crew:	55
Number of scientists on board:	4

4.2 Other craft in the project, including its use:
None

4.3 Particulars of methods and scientific instruments:		
Types of samples and measurements	Methods to be used	Instruments to be used
Bathymetric (hydrography): measurement of water depth and images of the seafloor	Acoustic measurements (frequency = 12 kHz; up to 432 beams with a beam pattern swath width of 4 to 7 times the water depth; hull-mounted instrument)	Kongsberg EM-122
Sub-bottom profiles (geology): measurements from which the surficial geology of the seafloor can be inferred and sedimentary structure of the upper subsoil shown in high resolution images.	Acoustic measurements (frequency = 3.5 kHz; high resolution images of 50 m of sediment below the seafloor; hull-mounted instrument)	Knudsen CHIRP 3260

4.4 Indicate nature and quantity of substances to be released into the marine environment:
None

4.5 Indicate whether drilling will be carried out. If yes, please specify:
None

4.6 Indicate whether explosives will be used. If yes, please specify type and trade name, chemical content, depth of trade class and stowage, size, depth of detonation, frequency of detonation, and position in latitude and longitude:
None

4.7 Indicate whether protected species be studied. If yes, please specify:
None

5. Installations and Equipment

5.1 Details of installations and equipment (including dates of laying, servicing, method and anticipated timeframe for recovery, locations and depth, and measurements):
Kongsberg EM-122 and Knudsen CHIRP 3260 were installed on the <i>CCGS Louis S. St-Laurent</i> in 2014. Both instruments are mounted in the vessel. They were most recently serviced during a 2024 dry dock of the vessel and were tested at sea in July 2024 off Newfoundland, Canada. These same instruments were approved by Iceland in the 2015 and 2016 MSR applications.

6. Dates

6.1 Estimated overall project start and end dates:
Project Start Date: July 17, 2025
Project End Date: September 21, 2025

6.2 Coastal State-specific details: Iceland	
Coastal Area	
Estimated Entry Date:	July 25, 2025
Estimated Departure Date:	August 2, 2025
Estimated Research Start Date:	July 25, 2025
Estimated Research End Date:	August 2, 2025
Explanation of multiple entries:	N/A
Research will be performed:	Hydrography, surficial geology
Extent to which Iceland will be enabled to participate or to be represented in the research project:	N/A
Name, affiliation and contact information for all participants from [name of coastal State where applying] :	N/A

7. Port Calls

7.1 List of Port Calls				
Port	Arrival Date	End Date	Special Logistical Requirements	Shipping Agent
No port calls in Iceland	N/A	N/A	N/A	N/A

8. Participation of the representative of the coastal State

8.1 Modalities of the participation of the representative of the coastal State in the research project:
See Section 6.2 N/A
8.2 Proposed dates and ports for embarkation/disembarkation:
See Section 6.2 No port calls in Iceland – N/A

9. Access to Data, Samples and Research Results

9.1 Expected dates of submission to coastal State of preliminary report, which should include the expected dates of submission of the data and research results: Submission of hydrographic and sub-bottom data in Iceland's EEZ by December 21, 2025
No more than 3 months from the end date of the research as provided in Section 6.1.
9.2 Anticipated dates of submission to the coastal State of the final report:
No more than 2 years from the end date of the research as provided in Section 6.1. Submission of cruise report by July 30, 2027
9.3 Proposed means for access by coastal State to data (including format) and samples:
Data will be provided through official channels at no cost to the coastal State.

9.4 Proposed means to provide coastal State with assessment of data, samples and research results:
Assessment of data and research results will be provided at no cost to the coastal State.
9.5 Proposed means to provide assistance in assessment or interpretation of data, samples and research results:
Assistance in further assessment or interpretation will be provided upon request.
9.6 Proposed means of making results internationally available:
Data will be submitted to the General Bathymetric Chart of the Ocean via Seabed 2030.

10. List of Supporting Documentation

10.1 List of attachments, such as additional forms required by the coastal State, etc.:			
Attachment Type	Description	Attachment	Submission Date
N/A			

11. Appendix #1: CV and Photo of Hydrographer-In-Charge/Chief Scientist

Dave Sinnott
 Canadian Hydrographic Service | Service Hydrographique du Canada
 Fisheries and Oceans Canada | Pêches et Océans Canada
 Dave.Sinnott@dfo-mpo.gc.ca Cell: 709-725-8045

Employment History:**Engineering Project Supervisor (UNCLOS)**

Canadian Hydrographic Service, Department of Fisheries and Oceans. Ottawa, ON.
 (April, 2024 to present)

Engineering Project Supervisor

Canadian Hydrographic Service, Department of Fisheries and Oceans. St. John's, NL.
 (March, 2022 to April, 2024)

Acting Engineering Project Supervisor

Canadian Hydrographic Service, Department of Fisheries and Oceans. St. John's, NL.
 - (October, 2021 to March, 2022)
 - (May, 2021 to September, 2021)
 - (November, 2020 to March, 2021)
 - (December, 2018 to March, 2019)
 - (August, 2014 to December, 2014)
 - (July to August, 2009, VME-NAFO international survey onboard the vessel Miguel Oliver, offshore Newfoundland).

Multidisciplinary Hydrographer

Canadian Hydrographic Service, Department of Fisheries and Oceans. St. John's, NL.
 (October, 2001 to March, 2022).

Hydrometric Survey Technologist

Water survey of Canada, Environment Canada, St. John's, NL.
 (September, 1999 to October, 2001)

Surveyor

Racal Surveys USA, Houston, Texas, Racal Pelagos Canada, Enfield, NS.
 (June, 1997 to August, 1999)

Surveyor

Strait Crossing Inc., Borden, P.E.I.
 (March, 1996 to November, 1996)

Surveyor

Richard G. King Surveys LTD., Portugal Cove, NF.
 (November, 1995 to December, 1995)

Surveyor

Nortech Surveys, St. John's, NF.
 (September, 1995 to October, 1995)

Student Hydrographer

Canadian Hydrographic Service, Department of Fisheries and Oceans, St. John's NF.
 (January, 1995 to April, 1995)

Student Hydrographer

Canadian Hydrographic Service, Department of Fisheries and Oceans, St. John's NF.
(May, 1994 to September, 1994)

Student Surveyor's Assistant

Legal Surveys Division, Canada Centre For Surveying, Surveying, Mapping and Remote Sensing Sector, Natural Resources Canada, Amherst, NS. (September, 1993 to December, 1993)

Educational Experience:

Fisheries and Marine Institute of the Memorial University of Newfoundland, St. John's, NL.
Bachelors of Technology (BTech), Engineering Technology and Applied Science major. Graduated February, 2022.

Cabot College of Applied Arts, Technology, and Continuing Education, St. John's, NL.
Three year Geomatics/Surveying Engineering Technology (Co-op) program. Graduated August 1995.