

NPC 151230: ICENAV

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Proposal Status: Conformity Determination Issued

[Overview Documents](#)

[Project Overview](#)

Type of application: New

Proponent name:

JosÃ© Lagunas

Proponent company:

DRDC

Project Description:

IceNAV is a government-led research project to improve the efficiency and safety of maritime navigation in ice-covered waters and to reduce the reliance on manned helicopter flights for ice reconnaissance. IceNAV is being conducted for the Royal Canadian Navy and Canadian Coast Guard through and is supported by various government departments. IceNAV research is being conducted from the CCGS Henry Larsen icebreaker as part of the normal Arctic resupply and icebreaking program during the late summer and early fall. The science team includes researchers from Defence Research and Development Canada (DRDC), the National Research Council of Canada (NRC), Environment and Climate Change Canada (ECCC), the Canadian Ice Service (CIS), NASA's Surface Water and Ocean Topography (SWOT) satellite program, and NATO's Centre for Maritime and Experimentation (CMRE) with support from the Canadian Coast Guard (CCG). The planned research focuses on measuring and understanding the properties of floating sea and glacial ice using sensors mounted on a ship, on a drone launched and recovered from the ship, on satellites, and on a small underwater autonomous vehicle. Sensors are used to passively measure the ice conditions around the vessel during transit operations. Additionally, the science team will disembark from the ship onto sea ice floes to manually retrieve and measure sea ice characteristics. Manual measurements include extracting sea ice cores, collecting samples of sea ice for mechanical testing, performing temperature and salinity measurements of the water near and under the targeted ice floes, and measuring ice thickness profiles using specialized sensors and subsea acoustics. The manual measurements are used to calibrate the data gathered by sensors. The research will take place in the regions surrounding the Northwest Passage intersection, including

Lancaster Sound, Parry Channel, Peel Sound, M'Clintock Channel and Prince Regent Inlet, between August 20 and August 30. The science team will specifically target large, stable ice floes for manual measurements and will passively record all sea ice conditions along the voyage route. The ship may venture outside of this region to find suitable ice depending on local conditions at the time of sailing. The research will focus on drifting pack ice in navigable waterways.

[Project Schedule](#)

Start Date:

2026-08-20

End Date:

2028-08-30

[Project Map](#)

List of project geometries:

Id

Geometry

Location Name

[22454](#)

polyline

Sampling region I

[22455](#)

polyline

Sampling region II

NPC Planning regions:

No Approved Plan

North Baffin

[Project Land Use and Authorizations](#)

Project Land Use:

Scientific Research

Licensing Agencies:

Nunavut Research Institute

Material Use

Equipment:

Type

Quantity

Type

Use

CCGS Henry Larsen

1

100x20x7 [m]

The ship will support Icenav's request for dedicated primary ship time in the Northwest Passage intersection, Parry Channel, Melville Sound and M'Clintock Channel

CCG Helicopter

1

12x10x3 [m]

Launched from CCGS Henry Larsen for ice-survey operations

FLIR Skeyranger drone

1

.45x.8.1.35 [m]

Drone to be used in sea-ice survey

DJI Matix 350

1

.8x.7x.4 [m]

Drone to be used in sea-ice survey

Fuel Use:

Type

Container

Capacity

Use

No data found

Hazardous Material and Chemical Use:

Type

Container

Capacity

Use

No data found

Water Consumption:

Daily Amount (m²)

Retrieval Method

Retrieval Location

0

Waste and Impacts

Environmental Impacts:

Risks 1) Losing deployed drifters 2) Underwater noise from scientific acoustic sources 3) noise from drones on birds 4) Drone crashes Mitigation 1) Deploy drifters in large floes to ensure they can be tracked 2) The acoustic source to be used is low power and will have lower propagation distances than the CCGS Henry Larsen itself. Icebreaker noise is in the 210-220 dB range and contains low frequency noise which propagates very far in comparison to the scientific acoustic source. 3) Noise from drones on birds is well studied, very minor impacts in the worst case. Birds tend to avoid them. 4) The flights of the drones will be conducted under good atmospheric conditions and clear visibility. The RHIB (rescue boats) of the CCGS Henry Larsen will stand ready in case recovery is needed

Waste Management:

Waste Type

Quantity Generated

Treatment Method

Disposal Method

No data found