Project Dashboard

DRDC - Northern Watch Technology Demonstration Project (NWTD) (149788)

Proposal Status: **Conformity Determination Issued**

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Project Overview

Type of application: **Renewal**

Proponent name:	Sarah Rahmer
Company:	Department of National Defence / Defence Construction Canada

Schedule:

Start Date:	2022-08-15
End Date:	2022-09-22
Operation Type:	Annual

Project Description:

DRDC maintains an Arctic Research Capability to support the Arctic research and development needs of DND and the CAF. A key element of our Arctic Research capability is the Gascoyne Inlet camp location. The main research program presently supported by the Gascoyne Inlet camp is the Defence of North America program. This program is a multi-year program, part of which is focused on surveillance in maritime Arctic locations. The intent is to carry out work at Gascoyne Inlet to further develop and test elements of an Arctic maritime surveillance capability. This capability will include the deployment of the DRDC Towed Reelable Active Passive Sonar (TRAPS). Concurrently, TRAPS will be used as an active sonar source to conduct a Marine Mammal Arctic Behavioural Response Study (BRS) onboard HDW during Op NANOOK 22 (12 to 24 Aug 2022). This trial will assess the HDW class ability to embark a functional and operational containerized towed array, including a tactical active sonar capability, and will demonstrate environmental stewardship through responsible use of active sonar in the Arctic. Research and Development During the OP NA-NK exercise four scientific activities/experiment exercises will be conducted. 1)Maritime Evaluation (MAREVAL) with Towed Reelable Active Passive Sonar (TRAPS) Trial combined with a Behavioral Response Study (BRS) – This trial will be undertaken in collaboration with Dalhousie University Large Whale Chair (Nuuk to Pond Inlet – in Baffin Bay). The BRS will look solely at Bottlenose and Sperm Whales. Evaluation of emerging containerized towed array systems through the deployment of the DRDC TRAPS system. Concurrently, TRAPS will be used as an active sonar source to conduct a Marine Mammal Arctic Behavioural Response Study (BRS) onboard HDW during Op NANOOK 22 on 15-24 Aug. This trial will assess the HDW class ability to embark a functional and operational containerized towed array, including a tactical active sonar capability, and will demonstrate environmental stewardship through responsible use of active sonar in the Arctic. The BRS will involve a Controlled Exposure Experiment (CEE) which will provide information critical for supporting future use of active sonar in the Arctic, and ultimately contribute to improved marine mammal mitigations for the RCN as required by the Species at Risk Act. Expendable Mobile ASW Training Target (EMATTS) – In this activity EMATTS will be tracked with TRAPS to get some baseline data. During this activity 4 EMATTS will be used. 2)Arctic Acoustic Recorders (AAR) Trial – In this activity three (3) acoustic recorders (1 on the bottom, 2 in the water column) will be deployed for period of one year. These are passive recorders, with no surface expression or noise emissions. When recovered they will each leave behind about 50 kg of anchor weight. 3)Long-Range Underwater Acoustic Communication Experiment (LRAT) - This experiment will take place with the participation of the HMCS GOOSE BAY (GBY) MCDV-class RCN vessel that will deploy both transmitter and recorders. Key objectives include: (a) collection of acoustic and non-acoustic data, (b) experiment new buoyancy and fairings, and (c) achieve 50-to-100 km

communication range by testing different communication schemes at relatively low active sonar frequencies. Two recorders will be deployed before the experiment and recovered afterwards. 4)Maritime Autonomous and Remotely Piloted Systems (MARPS) Trial - This trial is a demonstration of interoperability between mobile and stationary maritime autonomous and remotely piloted systems for the Above Surface Warfare (ASW) “hold at risk scenario”. This trial will be undertaken in shallow water near Pond Inlet, NU. The trial requires under 100 meters of water. One unmanned surfaced vessel (USV) will be deployed and recovered and one recorder will be deployed prior to the experiment and recovered after completion. This project has previously had a Type B Water Use License (1BC-NWT1113); however the annual water consumption is less than 1 cubic meter for the camp requirements. Sewage disposal is via an approved off-site facility and greywater generated by the camp is screened and returned to the ground via a loose gravel surface.

Personnel:

Persons:	15
Days:	37

Project Map

List of all project geometries:

ID	Geometry	Location Name
9105	point	DUSN node
9106	point	USV 2600 (North-West edge of box)
9107	point	USV 2600 (South-East edge of box)
9127	point	AAR1
9128	point	AAR2
9129	point	AAR3
9130	point	DUSN1
9131	point	DUSN2
9132	point	GBY 100-km waypoint
9133	point	BRS trial

Planning Regions:
Kivalliq
Affected Areas and Land Types
Settlement Area
North Baffin Planning Region

Project Land Use and Authorizations

Project Land Use
Scientific Research
Licensing Agencies
INAC: Renewal LUP Application has been submitted to INAC
NIRB: Application was exempted from screening as per Section 12.4.3 of the NLCA and the activities therein remain subject to the terms and conditions recommended in the original June 19, 2008 Screening Decision Report
NWB: NUNAVUT WATER BOARDAPPROVAL WITHOUT A LICENCE
Other Licensing Requirements
No data found.

Material Use

Equipment

Type	Quantity	Size	Use

Sea Robotics USV-2600 (USV i.e. Uncrewed Surface Vessel)	1	1000 lbs	Collection of high-frequency (450 kHz) sonar data to evaluate the performance characteristics of this sonar in the arctic ocean where the presence of freshwater layers affect the sound velocity profile.
RF Float	1	70 lbs	For DUSN communications
DUSN	1	450 lbs	To record information
AUV	1	22.75”L x 3.89”H x 1.14”D	- IVER-3 (Klein UUV3500)- IxBlue C3 Inertial navigation system
CTD sensor	1	2.8”L x 8.0”H	- Conductivity / Temperature/ depth sensor
AIS TX	1	6.5” (W) × 4.3” (H) × 3.6” (D)	Portable automatic identification system transmitter
Slocum glider	1	1.79m L x 1.01m W x 0.49m H	Long range remote water observation
Acoustic recorders	3	74mm W x 101mm H x 28mm D	Biodiversity assessment

Fuel Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Hazardous Material and Chemical Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Water Consumption

Daily Amount (m^3)	Retrieval Method	Retrieval Location
0		

Waste and Impacts

Environmental Impacts

Waste Management

Waste Type	Quantity Generated	Treatement Method	Disposal Method
No data found.			