

Non-Technical Project Summary

Project Title:

Northern Watch Technology Demonstration Project

Researcher's Name and Affiliation:

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Project Location:

Various components will be installed at Gascoyne Inlet and above Cape Ricketts on Devon Island.

Timeframe:

Mid-July to mid-September annually from 2008 through 2016

Project Description:

With the prospect of an open sea route through Canada's Arctic, the Federal Government has stated that Arctic sovereignty is a priority. The Northern Watch Technology Demonstration (NW TD) project was initiated to sensors and systems for cost effective surveillance of the unique maritime environment of the Canadian Arctic. Such surveillance is required for an effective understanding of activities and events in the North that could affect Canada's security, safety, economy, and/or environment. To achieve the objective a power generation system, a Primary Sensor Habitat, an Underwater Acoustic Array Receiver Habitat and a satellite communications system will be installed. These tests involve both underwater and land-based sensors. The underwater portion involves deploying two bottom-mounted acoustic arrays, each with a 10-km long sub-sea cable to the old Defence Research camp at Gascoyne Inlet. The camp will be expanded to safely support up to 25 Defence Scientists and support staff for up to two months each year. Land-based sensors include a meteorology system, a marine navigation radar, an Electro-Optical (EO) system, an Passive Radar Intercept receiver and an Automatic Identification System (AIS). The land-based portion will be housed in a structure on the slope leading up to the mesa approximately 500 m south of the camp. Some antennas may be situated on the mesa above Cape Ricketts. Additionally, some experiments on a short term basis may be conducted with portable structures and generators at the high ground between Cape Ricketts and Cape Liddon in August 2014 and or August 2015.

Methodology:

Sensors and systems will be tested progressively commencing in 2012 and leading up to a full year, full system capability demonstration between August 2014 through 2015. The tests will utilize commercial shipping on a non-intrusive basis, the DND research ship CFAV QUEST, available Canadian Coast Guard vessels and shipping associated with operation NANOOK.

The Gascoyne Inlet site was chosen for many reasons, including:

1. The existing camp and runway.
2. The existing through-shore pipe for bringing underwater cables ashore.
3. DRDC's familiarity with the surrounding area and sea bottom.
4. The elevation of Cape Liddon.
5. The availability of vessel traffic.
6. Barrow Strait is one of the main choke points in the North-West Passage.
7. The proximity to Resolute Bay and amenities.

Data:

The data will be used to determine the technological and economical feasibility for possible development of a network of monitoring stations for the North-West Passage.

Reporting:

Routine information bulletins will be provided to participating Federal Government Departments

An annual summary report will be submitted to the Nunavut Research Institute

Scientific papers will be published in peer reviewed journals.