

The Canadian Armed Forces in the Arctic: Purpose, Capabilities, and Requirements

by Adam Lajeunesse, PhD

May, 2015



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POLICY PAPER

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ISBN: 978-1-927573-35-8

▶ **Executive Summary**

Over the past fifteen years, the Canadian Armed Forces (CAF) has been rebuilding its capacity to operate in the Arctic. It has been a difficult task and progress has been slow. Yet, the need for these capabilities is unquestioned. A changing Arctic environment coupled with expanding shipping routes and resource development promises to bring new activity (and potential threats) to the region. As such, the CAF's role in the Arctic will only grow in importance.

The military's responsibilities in the region, as outlined in Canadian policy documents, are broad. They centre on defending Canadian sovereignty and security – concepts that cover the spectrum of defence activity, from peacetime military engagement to major combat operations. In practice, however, the CAF has had to narrow its focus, in order to apply limited resources to where they can most effectively meet the government's 'sovereignty' and 'security' mandates. This has meant downplaying its focus on conventional security threats and a large permanent presence on the assumption that such efforts would be wasted in the absence of any real state-based threat. Instead, the CAF has invested in building up its adaptive dispersed operations capability, designed for a wide spectrum of security situations that it will manage in partnership with other government departments. In so doing, it will reinforce Canadian sovereignty by contributing to the government-wide exercise of effective control to ensure that Canadian law and regulation is adhered to in the Arctic.

For the Army this has meant establishing a number of small, but well trained, reserve and permanent force units designed for rapid and agile response. The Royal Canadian Navy (RCN) is about to begin construction of its Arctic Offshore Patrol Ships (AOPS), which will offer a valuable constabulary, research, and general use platform to the RCN as well as other government departments and agencies with Arctic mandates. The situational awareness required to support these efforts is, likewise, being buttressed by new satellites and monitoring technologies that should come online as increased activity warrants their deployment.

At present, significant hurdles remain in the CAF's ability to deploy, move, and work effectively in the Arctic, however it has made real progress from a near standing start. Its operational focus is well designed and its capabilities are increasing at a sufficient pace to keep up with actual requirements.

In the twenty-first century, the Arctic has regained a place of prominence on Canada's policy agenda. As climate change strips the region of its ice cover¹ the dangers and opportunities presented by increasingly accessible resources and sea routes are becoming more apparent. In response, the Canadian Armed Forces (CAF) has been called upon to enhance its presence in the region as a means of defending Canadian sovereignty and security against a myriad of potential threats. The CAF's role in the Arctic has often been misconstrued in the popular media and the intent of this paper is to clarify the nature of this mission; and, by relying primarily on published and unpublished Department of National Defence (DND) documentation, to weigh the CAF's ability to carry it out by examining its strengths, weaknesses, and ongoing challenges.

The general nature of the CAF's core objectives in the Arctic, namely providing 'security' and 'defending sovereignty', has given rise to confusion and misunderstanding within the general public about what exactly the military has been tasked with and what constitutes success. Too often, Arctic security and actions taken in pursuit of it have been taken to mean conventional military security.² In fact, the absence of a real military threat has led the CAF to rightly focus on a host of other, unconventional, security concerns – properly divided up into the categories of safety and security.³ Its sovereignty duties have, likewise, been misconstrued as an effort to strengthen Canada's legal position by maintaining ships and soldiers in the region to show the flag and demonstrate 'presence.' In fact, defending sovereignty consists of exercising *effective* control in response to specific needs and interests in Canadian territory and internal waters.⁴ This entails focused efforts to monitor northern activity and respond to unconventional security situations, while assisting other government departments in their efforts to enforce Canadian law and regulation.⁵

With this in mind, the CAF's Arctic capabilities should not be judged primarily on its force levels or the progress of its major Arctic platform and infrastructure projects – which are relevant only in so far as they enable the CAF to accomplish its core responsibilities. Instead, capacity should be defined and measured by the Forces' ability to respond to the most likely and realistic threats and challenges. This implies the need for situational awareness, the ability to deploy and maintain appropriate mission specific teams adaptable to a variety of situations, smooth integration into joint operations, and the ability to respond quickly and decisively with appropriate force across the Canadian Arctic. These missions and requirements receive less public attention than large-scale deployments or major procurement programs but they are at the heart of the military's modern approach to Arctic sovereignty and security. The CAF has been focusing its attention on building these core capabilities. Significant gaps remain between its current abilities and desired end-state, yet there has been a steady improvement in its basic skill sets. Thankfully, slower than expected Arctic development has also provided a certain amount of breathing room. As such, the CAF is (for the most part) capable of meeting its current

¹ See for instance, data provided at: NASA, "Earth Observatory," <http://earthobservatory.nasa.gov/>

² For a sample see: Robert Murray, "Harper's Arctic Failure," *Winnipeg Free Press* (September 1, 2013); Steve Mertl, "Canada Needs to do More to Back its Claims to Arctic Sovereignty," *Daily Brew* (April 24, 2014); "Canada is Falling Short in Arctic Defence," *Times Colonist* (September 3, 2013).

³ A third category: conventional "defence" is also recognized, however, it is seen as a potential future concern, not a current or pressing issue; Department of National Defence (DND), *Canadian Forces Northern Employment and Support Plan* (November, 2012).

⁴ For a fuller account of this philosophy as it manifested in the 1970s see: P. Whitney Lackenbauer and Peter Kikkert Eds., *The Canadian Forces & Arctic Sovereignty: Debating Roles Interests and Requirements* (Waterloo: Wilfred Laurier University Press, 2010).

⁵ On this see: P. Whitney Lackenbauer, "From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World" *CIC: Foreign Policy for Canada's Tomorrow* No. 3 (July, 2009).

requirements and is actively preparing for those threats to Canadian sovereignty and security that are likely on the horizon.

CANADA'S ARCTIC DEFENCE REQUIREMENTS

The basic structure of the CAF's northern mission was provided by the *Canada First Defence Strategy* (CFDS) in 2008, which framed the Conservative government's general intent for Canadian defence policy and the CAF. There, the "capacity to exercise control over and defend Canada's sovereignty" was laid out as the central requirement. To achieve this, the CAF would "demonstrate a visible presence" and assist other government departments in responding to "any threats that may arise."⁶ As a broad framework, the CFDS left the nature of those threats, and the manner in which the CAF was to exercise that control, unspecified. This ambiguity was necessary in the absence of a clearly defined enemy and a continuously evolving set of potential challenges. Surveillance is singled out as a central requirement in this document and in additional policy statements subsequently produced by other government departments.⁷ Also highlighted is the need to establish a greater "presence" in the region.⁸ How these factors contribute to sovereignty and security is clarified in the *Statement on Canada's Arctic Foreign Policy*, released by the Department of Foreign Affairs in 2010, which states: "Canada exercises its sovereignty daily through good governance and responsible stewardship. It does so through the broad range of actions it undertakes as a government ... We exercise our sovereignty in the Arctic through our laws and regulations, as we do throughout Canada."⁹ This notion – that sovereignty is strengthened by effective governance, control, and the consistent application of Canadian law – is restated in DND guidance papers as well.¹⁰

From a legal perspective, exercising sovereignty means demonstrating that the waters of the archipelago are historic internal waters,¹¹ a status that requires both foreign acceptance of Canada's position, and the exclusive and effective exercise of Canadian jurisdiction.¹² Recognition of Canadian sovereignty is best displayed by foreign operators complying with Canadian laws and regulation in Canadian waters. This, in turn, is something that the CAF encourages by maintaining enforcement capabilities tailored to supporting constabulary operations in the Arctic waters, by assisting foreign and domestic operators, and working with other departments and agencies to facilitate the application of Canadian jurisdiction across the region.

The scenarios in which DND envisions the CAF contributing in this regard are all unconventional security situations.¹³ Increased activity in the North is, for example, expected to bring more illegal fishing, maritime and aerospace accidents, dumping, pollution, trespassing, and criminal activity.¹⁴ For the most part, the CAF is not to be the force mandated to respond to

⁶ DND, *Canada First Defence Strategy* (2008), 8.

⁷ See for instance DND, *Canada First Defence Strategy*, 7; Government of Canada, *Statement on Canada's Arctic Foreign Policy* (2010), 6; Department of Indian Affairs and Northern Development, *Canada's Northern Strategy: Our North, Our Heritage, Our Future* (2009), 10.

⁸ See for instance: DND, *Canada First Defence Strategy*, 8; Government of Canada, *Statement on Canada's Arctic Foreign Policy*, 6.

⁹ Government of Canada, *Statement on Canada's Arctic Foreign Policy*, 5.

¹⁰ See for instance: DND, *Arctic Integrating Concept* (August, 2010), 7, 9, 26, 3 and Canadian Army Land Warfare Centre, *Northern Approaches: The Army Arctic Concept 2021* (2013), 65.

¹¹ The status of these waters remains the most significant sovereignty dispute in the Canadian Arctic.

¹² For the best description of these requirements see: Donat Pharand, "The Arctic Waters and the Northwest Passage: A Final Revisit," *Ocean Development and International Law* 38:1 (2007), 7.

¹³ Canadian Army Land Warfare Centre, *Arctic Integrating Concept*, 24.

¹⁴ *Ibid*, 23.

such threats; yet, by virtue of its assets, resources, and capabilities, it will provide crucial support that enables other government departments (OGD) to exercise their own responsibilities and mandates in the North.¹⁵ Effectively, the Forces will be “leading from behind” to help the government fulfill its basic responsibilities while being ready to respond to a wide spectrum of potential safety and security emergencies.¹⁶

GROUND FORCES

The Army’s attempts to regain the Arctic capabilities it lost during the 1990s (after ending its Cold War era Arctic training), began in the mid-2000s and resulted in an unpleasant shock. In December 2008, the Army sent a small force to Churchill for *Exercise Northern Bison*. A company was deployed to a forward operating base and, in temperatures ranging from -45°C to -57°C, soldiers soon lost their effectiveness.¹⁷ In an article on the subject, Colonel R. Poirier admits some surprise at just how many basic winter warfare skills had been lost, a conclusion highlighted in the exercise after-action report as well.¹⁸ The main lesson taken from *Northern Bison* was that most troops deployed north would quickly become liabilities rather than assets.

Tactical movement was identified as one of the Army’s most serious liabilities.¹⁹ During *Northern Bison* (2009), serious deficiencies were discovered in the troops’ ability to move a formed element – a fact hammered home during *Exercise Northern Bison* (2010), *Operation Arctic Ram* (2012), and *Exercise Stalwart Goose* (2013).²⁰ The shortage of over-snow vehicles was the critical element. During *Arctic Ram*, this deficiency cost the government \$420,000 – money spent renting enough snowmobiles to acquire a “modest capability.”²¹ Attempts to address this issue are currently being made through the Arctic Light Over Snow Vehicle (LOSV) project, designed to provide the Army with a “robust, light, winter mobility capability.” This program is working concurrently with the Arctic All-Terrain Vehicle project to address mobility issues, particularly in the High Arctic, where current LOSVs are few in numbers and unsuited for operations.²²

Sustaining deployed forces has been found to be equally problematic. Equipment failure is both more frequent and harder to work around in the Arctic.²³ Moving parts from southern warehouses is made difficult, not only by the distances involved, but by limited shipping infrastructure that was never designed to handle more than a small stream of goods.²⁴ Relying on local stocks is not an answer. Many hamlets in the Arctic Archipelago have their supplies brought in once a year by ship and cannot maintain both themselves and soldiers operating in the area. A 2011 analysis of the situation revealed that few northern communities can support

¹⁵ DND, *Canada First Defence Strategy*, 8.

¹⁶ P. Whitney Lackenbauer “Securing Sovereignty: Defence Cooperation in the Canadian Arctic, 1942-2013,” PPT presentation (November, 2013).

¹⁷ Col R. Poirier, “Arctic Response and 38 Canadian Brigade Group,” *Canadian Army Journal* 13:3 (2010), 145.

¹⁸ Col R. Poirier, “Post Exercise Report, Northern Bison 2008” (March 13, 2009) and Col R. Poirier, “Arctic Response,” 145.

¹⁹ Col R. Poirier, “Arctic Response,” 146.

²⁰ LtCol J.R. Casey, “Lessons Learned Report Exercise Arctic Ram 2012” (March 28, 2012) and BGen J.D.G. Henley, “LFAA Lessons Learned Report – Stalwart Goose” (March 21, 2013); Col R. Poirier, “Post Exercise Report, Northern Bison 2010,” (May 6, 2010).

²¹ BGen P.F. Wynnyk, “Post Exercise Report – Exercise Arctic Ram 12,” (June 26, 2012).

²² BGen C.C. Thurrott, “Implementation Order Arctic Light Over Snow Vehicles” (October 7, 2013).

²³ Joan Taylor, “Op Hudson Sentinel 2005 Post Operation Report” (October 24, 2005).

²⁴ Ibid.

anything greater than a sub-unit surge.²⁵ In response to this challenge, the Army is establishing a series of Northern Operational Hubs to facilitate sustained operations without drawing on the region's limited resources.²⁶

With these challenges in mind, the Canadian Army has wisely focused its efforts on building up small, self-contained, highly mobile units. At the heart of this effort is the Arctic Response Company Groups (ARCGs). Force generated from the primary reserves, the end state for these groups has always been very generally to provide “a robust and resilient Arctic capability ... with sufficient depth of personnel qualifications to enable Force Generation for [domestic operations] as needed.”²⁷ Simply put, these units are intended to provide support to first responders and provide the critical “mass” needed to manage significant disasters and other security situations.²⁸ This operational concept has been put on display in a number of exercises and the ARCGs have become involved in increasingly complex scenarios as their capabilities have improved. During *Operation Nanook* (2010) a unit spent three days practicing basic survival skills along with zodiac and all-terrain vehicle movements on Baffin Island.²⁹ During *Nanook* (2013) one company group practiced amphibious deployment and providing support to Environment Canada during a poaching scenario on Cornwallis Island.³⁰ That same year, during *Operation Guerrier Nordique*, an ARCG was deployed to support the Rangers in a simulated plane crash and train derailment in remote areas of Quebec.³¹

To see how far the Army has come it should be remembered that it was an ARCG deployed on *Exercise Northern Bison* in 2008, whose terrible performance demonstrated how badly the Army needed to improve its Arctic capabilities. In contrast, one of these units (from the 5th division) was declared at full operating capacity (FOC) in 2014. This status was attained after *Exercise Stalwart Goose*, when the unit maintained sustainment, communications, and operability over a total of 540 kilometres in four (plus) days. This exceeded the previously stated requirement for FOC – which was a self-sustaining, deployable range of three hundred kilometres and a demonstrated ability to provide assistance to other government departments and local communities.³² Readiness targets for planned and deliberate operations have also been cut in half to include full deployment within fifteen days, including a reconnaissance party at day five and an advanced party deployed at day ten.³³

²⁵ MajGen D.A. Fraser, “Training Implementation Directive – Initial Operating Capability – Arctic Response Company Groups and Arctic Vanguard” (March 28, 2011).

²⁶ David Pugliese, “Canadian Forces to Stockpile Military Equipment in Arctic ‘Hubs’ for Faster Response in Case of Emergency,” *National Post* (August 21, 2014).

²⁷ Army Training Authority, “Training Implementation Directive - Initial Operating Capability (IOC) - Arctic Response Company Groups (ARCG) and Arctic Vanguard” (September, 28 2011).

²⁸ Interview with MajGen Christopher Coates (CJOC), Ottawa, May 23, 2014.

²⁹ BGen J.J.R.G. Hamel, “Operation Nanook 2010 After Action Report” (December 8, 2010).

³⁰ BGen. G.D. Loos, “Operation Nanook 2013 After Action Report” (February 11, 2014).

³¹ LtCol G.P.S. Faucher, “Post Exercise Report for Guerrier Nordique 2013” (April 8, 2013).

³² Col S.P. Leonard, “Arctic Response Company Group and Land Component Command HQ Full Operating Capability (March 24, 2014).

³³ *Ibid.*



The ARCG advances to the next position during Exercise Guerrier Nordique in Iqaluit on March 5, 2014 – Department of National Defence, photo by Corporal Valérie Villeneuve

The essential capability provided by the ARCGs and the upgrading of the Army's basic skills is as crucial as it is unsexy. They are not intended to engage in combat operations in the Arctic and, apart from the occasional photo-op during exercises, they were not designed as dramatic displays of Canadian sovereignty. Rather, they provide the CAF with options when responding to a wide variety of scenarios. As mentioned earlier, *Exercise Northern Bison* (2008) revealed that most soldiers would be a liability if sent north – meaning that keeping them alive would consume all of their own energy, plus that of others. Current Arctic training is designed, first and foremost, to minimize the amount of effort required for a unit to sustain itself in order to maximize the energy available to provide support.³⁴ The ARCGs were built to be inserted wherever needed to provide Canada with a basic Arctic presence, not in the traditional flag-waving sense of the word but as a versatile all-purpose force capable of providing support across the security spectrum.

While the ARCGs are intended to provide the bulk of the Army's northern response, they are southern reservists requiring weeks to organize and deploy. The military's permanent northern presence is the Canadian Rangers. A subcomponent of the reserves, the Rangers have long been Canada's northern experts. Used by the CAF as guides, trainers, and scouts, they maintain a watchful presence across most of the Arctic, reporting unusual activity, and responding to disasters in or near their communities.³⁵ 1 Canadian Ranger Patrol Group (1CRPG) consists of 1,850 members spread across sixty patrols covering the three northern territories.³⁶ By virtue of their capabilities and location, the Rangers will be the CAF's first responders in most safety and security situations.³⁷

³⁴ Interview with MajGen Christopher Coates (CJOC), Ottawa, May 23, 2014.

³⁵ For the best account of the Rangers, their role and history, see: P. Whitney Lackenbauer, *The Canadian Rangers: A Living History* (Vancouver: UBC Press, 2013).

³⁶ Canadian Army, "Canadian Rangers," <http://www.army-armee.forces.gc.ca/>.

³⁷ Canadian Army Land Warfare Centre, *Arctic Integrating Concept*, 23. See also: MajGen. D.A. Fraser, "Training Implementation Directive – Initial Operating Capability – Arctic Response Company Groups and Arctic Vanguard" (March 28, 2011).

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The patrols of the 1st Canadian Ranger Patrol Group are located throughout the Yukon, the Northwest Territories, Nunavut and Atlin, B.C. – Canadian Army

Strengthening the Rangers has been one of the key elements of the CAF's drive to enhance overall capacity. The force's numbers have been expanded, new equipment issued, and a new rifle chosen to replace the traditional Lee-Enfield. 1CRPG has also moved beyond its traditional areas of operation by undertaking extended patrols and training exercises.³⁸ *Operations Nunavut* and *Nunakput*, for instance, have seen the Rangers deploy on lengthy expeditions to demonstrate capability and practice working with other elements of the CAF and OGD. Alone, the Rangers represent one leg of the CAF's domain awareness. When deployed with regular forces or southern-based reservists, they serve as force multipliers, increasing the effectiveness of any deployment by teaching, guiding, and generally keeping others alive and active.³⁹ After-action reports from Army exercises repeatedly highlight the benefits of this partnership and the need to leverage the Rangers' knowledge and capabilities to facilitate operations and further develop the Army's northern skills.⁴⁰

In the event of a security situation requiring a CAF presence, the Rangers would almost inevitably be the first responders. However, given their lack of resources, and the fact that their small numbers are spread so thinly, they will often require support. This will come from an Army Initial Reaction Unit (IRU). The IRU will deploy a four person reconnaissance unit within eight hours, a 'vanguard company' of twelve people within twelve hours, and the main support body of thirty-two people within twenty-four hours.⁴¹ The IRUs are permanent force units designed around the same model as the ARCGs, trained with the same capabilities to achieve the same objectives, but to do so on a smaller scale and a much shorter timeframe.⁴² In the event that more support is required, an ARCG can be mobilized and deployed.

³⁸ Lackenbauer, *Rangers*, 441.

³⁹ *Ibid*, 460.

⁴⁰ See for instance: BGen J.D.G. Henley, "LFAA Lessons Learned Report – Stalwart Goose" (March 21, 2013).

⁴¹ "Training Needs Analysis – Land Force Arctic Strategy" (April 2010).

⁴² MajGen D.A. Fraser, "Training Implementation Directive – Initial Operating Capability – Arctic Response Company Groups and Arctic Vanguard" (March 28, 2011).

This layered response system makes sense and real progress has been made in building a basic capability, designed around realistic security threats. The Army has a growing supply of soldiers trained up to the point that they will be useful on an Arctic deployment and it can conduct small-scale deployments and tactical movements while self-sustaining for nearly three weeks.⁴³ It may not be a robust military presence in the conventional sense, and has been criticised in the media for falling short of the government's aggressive promises for a strong 'presence,'⁴⁴ however, it is a focused and cost-effective system. It is designed with Canada's limited resources in mind and for the sort sovereignty and security threats that the country is likely to face in the coming years.

MARITIME FORCES

Like the Army, the RCN has been working hard to re-establish its Arctic capabilities after realizing how badly they had been degraded by its thirteen year absence from the region following the Cold War. Its return to the Arctic waters began in 2002 with *Operation Narwhal*, a simple deployment of two patrol ships (Maritime Coastal Defence Vessel, or MCDV) but a powerful reminder of how far the RCN's Arctic abilities had atrophied. During *Narwhal*, and subsequent deployments, communications between the ships, shore parties, and their air support consistently proved unreliable – in part because frequencies and equipment were not standardized and, in part, because of atmospheric and environmental difficulties.⁴⁵ Occasionally, this created very real dangers. During *Operation Hudson Sentinel* (2005) a deployed rigid-hull inflatable boat found itself lost and unable to contact its ship. The crew was forced to locate a MCDV visually, a task that might have been impossible had the weather turned.⁴⁶ Experience also showed that mechanical issues were more difficult to manage so far from naval supply lines and, in some instances, required elaborate efforts to move emergency supplies to a ship in northern waters.⁴⁷

Numerous deployments into the region have led to a gradual improvement in RCN procedures and systems and many difficulties have been ironed out, improving the Navy's ability to operate and maintain ships in the region and to coordinate their activities with the Army, Air Force, and OGD. In spite of this, Canadian warships remain poor platforms for Arctic operations. Simply put, they are too expensive and too few in number for regular use as patrol craft, fisheries inspectors, or constabulary vessels and, most importantly, incapable of safely operating in ice-infested waters.

⁴³ A.T. Stack, "Land Force Arctic Master Implementation Plan – Initial Operating Capability Arctic Response Company Groups" (June 17, 2010).

⁴⁴ See for instance: Robert Smol, "When will we get Serious about Arctic Defence?" *CBCNews* (May 11, 2009).

⁴⁵ Air Component Commander, "EX Narwhal ACC Post Ex Report" (2002).

⁴⁶ Lt(N) D. Connelly, "Lessons Learned Planning and Coordination – Op Hudson Sentinel Post Operation Report" (October 5, 2005).

⁴⁷ See for instance the supply of HMCS *Glace Bay* in: Lt(N) D. Connelly, "Lessons Learned Planning and Coordination – Op Hudson Sentinel Post Operation Report."



The HMCS Toronto and CCGS Pierre Radisson in Hudson Strait off the coast of Baffin Island during Operation Nanook 2010 – Department of National Defence, photo by Sergeant Kevin MacAulay.

As such, some of the CAF's most expensive new procurements are intended to develop a genuine Arctic capability for the RCN. First amongst these is the Arctic Offshore Patrol Ships (AOPS). Announced in July 2007, the AOPS are intended to increase the Navy's ability to operate across the Northwest Passage, support other CAF units, and assist OGD in carrying out their mandates.⁴⁸ The Navy's guiding policy statement, *Leadmark* (2001), assumes that traffic along the Northwest Passage will continue to increase and that the government's responsibilities will grow accordingly. As is the case in Army projections, these responsibilities are connected to unconventional security threats, like criminal activity and smuggling.⁴⁹

Unlike the RCN's frigates and patrol ships, these vessels will be able to operate safely in first-year ice and do more than simply pop into the eastern Arctic during the annual *Operation Nanook*. The AOPS will be able to support the RCMP in policing of maritime traffic in the Northwest Passage while providing a platform for Transport Canada, Fisheries, and other departments with mandates in the region. Rear-Admiral David Gardam, Commander of Maritime Forces Atlantic, described the AOPS as, in essence, "a big empty ship" that can "embark doctors, dentists, scientists, marine biologists, police and fisheries officers, environmentalists and many other personnel with an interest in, or a mandate for, the development and sustainment of Canada's north."⁵⁰ This assessment is an insightful look beyond the AOPS military characteristics (since they will be lightly armed). The CAF and OGD need the capabilities that these vessels will provide. The AOPS will likely never fire their guns in anger, nor will their presence convince the United States to recognize Canadian sovereignty.⁵¹

⁴⁸ Department of National Defence, "Arctic/Offshore Patrol Ships (AOPS)," <http://www.forces.gc.ca/en/business-equipment/arctic-offshore-patrol-ships.page>.

⁴⁹ Royal Canadian Navy, *Leadmark: The Navy's Strategy for 2020* (2001), 66, 84, 105.

⁵⁰ David Gardam, "The Admiral's View of the Arctic and Offshore Patrol Ship," *Canadian Naval Review* (February 12, 2012).

⁵¹ For a contrary opinion see: Rob Huebert, "The Need, Costs and Benefits of a Canadian Naval Presence in the Arctic," *Canadian Naval Review* 8:1 (Spring, 2012), 8.

They will, however, provide Canada with vital research and general use platforms, enhanced constabulary options, and better response capabilities in the event of a disaster or emergency.

Closely linked to the AOPS is the RCN's \$146 million re-fueling facility at Nanisivik, designed to support naval, Coast Guard, and other government operations.⁵² Soaring costs and trouble with the dock led the project to be downsized from what was originally planned as a year-round operational hub, to an unmanned fuel depot. Still, the refueling capability is the most essential component. Because of the AOPS' relatively limited range (6,800 nautical miles) Arctic refueling is essential for the patrol ships – while also very useful for the Canadian Coast Guard's icebreaker fleet.⁵³

While the AOPS and Nanisivik programs have been delayed, this has not materially damaged the RCN's ability to carry out its responsibilities in the North. This is because those programs were undertaken in *anticipation* of a need, rather than in response to any existing requirement. If and when Arctic shipping activity increases dramatically (likely as resource projects come online), the RCN will require a greater presence to monitor, police, and assist vessel traffic. However, that activity has not yet materialized and, by the time it does, these programs should be far more advanced. In the meantime, Canada's current naval resources are perfectly adequate.

AIR POWER

Situational awareness in the Arctic is essential to exercising effective control. During the Cold War, Canada employed surveillance craft (the CP-140 Aurora and CS2F Tracker) to conduct periodic, but largely symbolic, flights as demonstrations of sovereignty.⁵⁴ In a top secret program, DND also spent decades experimenting with maritime detection systems in the chokepoints of the Northwest Passage.⁵⁵ The system was never operationalized but, in the twenty-first century, DND is attempting something similar.

The Northern Watch project was first announced in the spring of 2008 as a test of various surface and underwater surveillance technologies – including acoustic, magnetic, and electric field sensors to monitor activity with marine navigation radar, an electro-optical system, an electronic intelligence receiver, and an automatic identification system (AIS).⁵⁶ The project is located at Gascoyne Inlet on Devon Island, a natural chokepoint for shipping through the Arctic Archipelago and the site of one of Canada's prototype Cold War detection systems.⁵⁷ The system is intended to identify both surface and subsurface vessels traversing the Northwest Passage. While there has never been a real problem with surface ships attempting to pass through the region surreptitiously, the anticipated increase in shipping activity will make maintaining an

⁵² Erin K. Barkel and Rod Story, *Budget Analysis for the Acquisition of a Class of Arctic/Offshore Patrol Ships* (Ottawa: Office of the Parliamentary Budget Officer, October 28, 2014), 4.

⁵³ The return distance from Halifax to Nanisivik is roughly 4,830nm, leaving the AOPS less than 2,000 nm of fuel reserves without local refueling. This calculation does not take into consideration extra fuel used moving through or around ice, which will significantly increase consumption.

⁵⁴ See Admiral Robert Fall's assessment in: Douglas Bland, *Chiefs of Defence* (Toronto: Canadian Institute of Strategic Studies, 1995), 232-33.

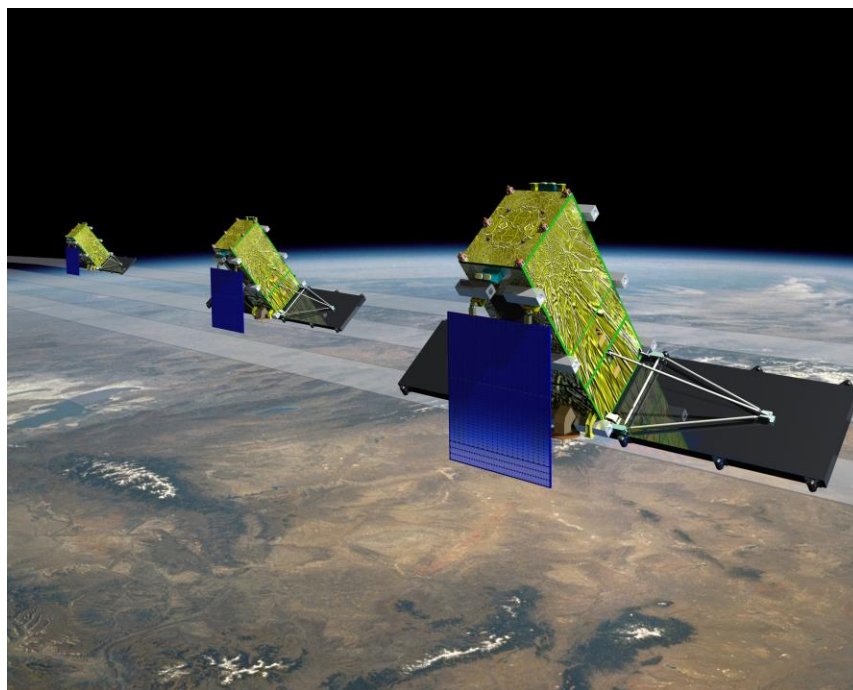
⁵⁵ Adam Lajeunesse, "A Very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-1986." *Cold War History* 13:4 (November, 2013).

⁵⁶ David Waller, Matthew R. MacLeod, and Talia McCallum, *Measuring Northern Watch: Goals Inputs, Metrics and Outputs* (Ottawa: Defence R&D Canada – Cora, 2009), 18. For the best account of this program's development see: William Carruthers, *Snake Oil Salesmen: Security under the Guise of Sovereignty in the Canadian Arctic* (University of Calgary Master's Thesis, 2014).

⁵⁷ Jean Luc Forand et al., "Surveillance of Canada's High Arctic," presentation at ArcticNet 2007, Laval, Quebec, December 13, 2007, <http://www.arcticnet.ulaval.ca/pdf/talks2007/Forand.pdf>.

accurate maritime picture both more difficult and more important. Canada has also long worried about the possibility of Soviet/Russian submarines using the area and, even twenty years after the end of the Cold War, the CAF continues to receive credible reports of foreign submarines in the Arctic waters.⁵⁸ Northern Watch is the military's response to this potential threat, though its capabilities will certainly remain classified for the foreseeable future.

In order to monitor activity beyond the region's chokepoints, the government relies primarily on space-based surveillance. The RADARSAT II satellite is the country's eye in space, monitoring activity and ship movements and cross-referencing this information with data from the AIS system to track vessels not transmitting their identity as required under international maritime regulations. The system is extremely capable, it can collect images of the Earth, day or night, through all kinds of interference (such as cloud cover, smoke, or haze) – an important consideration in the Arctic.⁵⁹ Through the Polar Epsilon project, which is DND's mechanism for processing RADARSAT data, critical information can be incorporated into a recognized maritime picture and disseminated within fifteen minutes.⁶⁰ To further strengthen this system, Canada plans to launch a constellation of three additional RADARSAT satellites in 2018, allowing for several more passes per day over the Northwest Passage. This increase offers many advantages, including the ability to measure ship movements much more precisely.



The Radarsat constellation of three radar imaging satellites – MacDonald, Dettwiler and Associates Ltd.

In the air, Canadian surveillance is still provided by the Royal Canadian Air Force's (RCAF) Aurora aircraft, that are in the midst of a \$2 billion upgrade of their mission systems and sensors, which should keep the planes active until at least 2030.⁶¹ Canada is also considering the

⁵⁸ See for instance: BGen D.B. Millar, "After Action Report" (December 14, 2008) and JTFN, "Interview Assessment Report – Probable Submarine Sighting in Vicinity of Grise Fjord, NU" (October 28, 2009).

⁵⁹ Caruthers, *Snake Oil Salesmen*, 68-70.

⁶⁰ *Ibid*, 77.

⁶¹ RCAF, "CP-140 Aurora: Intelligence, Surveillance and Reconnaissance Aircraft," <http://www.rcfarc.forces.gc.ca/en/aircraft-current/cp-140.page>.

use of drones to supplement its close surveillance capabilities.⁶² Requiring less maintenance and manpower than traditional aircraft, unmanned aerial vehicles (UAV) could, theoretically, be used economically in a wide assortment of roles, from tracking ships to monitoring pollution incidents. The Joint Unmanned Surveillance Target Acquisition System (JUSTAS) program, launched in 2005, has been examining the possibility of procuring a fleet of medium-altitude long-endurance UAVs though, as of early 2015, DND is still exploring its options.⁶³

Combat aircraft are unlikely to play a major role in Arctic security. In spite of Russia's renewed proclivity for flying its ageing bombers outside Canada's northern airspace, there is no realistic situation in which the RCAF will have to engage hostile aircraft in the region. Such hostilities would require a shooting war, during which Russia would have little to gain by sending valuable fighters into a region possessing no strategically important targets that could not be more easily destroyed by ballistic or cruise missiles. Canada will need to maintain a small fighter force stationed in the North, ready to escort Russian planes out of its Air Defence Identification Zone or to intercept if they should violate Canadian airspace. Still, this is a duty easily managed by the RCAF's existing fleet of CF-18s operating from its four forward operating locations in the North.⁶⁴

Monitoring the Arctic is a necessary precondition for effective control and Canada's capabilities largely meet its current requirements. If there is an upsurge in northern activity in the years ahead, new assets will have to be brought online. Still, Canada's ongoing programs appear well designed to meet those needs. The Northern Watch technologies – in whatever form they may take – will constitute an important tripwire, while the RADARSAT upgrade will allow for superior tracking inside the Northwest Passage. Surveillance craft and/or drones will also be available for close inspection and tracking if the situation warrants it. As is the case with the Navy's major capital acquisitions, some of these projects have been delayed by technical and financial difficulties.⁶⁵ Still, the increase in Arctic shipping and resource development has been slower than expected – meaning that Canada's surveillance requirements remain manageable. As such, these delays have not materially impacted the CAF's abilities to fulfill its current responsibilities.

CONCLUSIONS

The CAF's return to the Arctic over the past decade and a half has been a slow and difficult process, and its basic operational limitations remain an ongoing challenge. Exercises have repeatedly reinforced the difficulties of moving and surviving in the northern environment as well as the need for better communications, equipment, and specialized training. Yet, in spite of its limitations, the military has made good progress. From a standing start, the Army has put together a number of small but well-trained reserve and permanent force units designed for rapid and flexible response. The Army can now, theoretically, deploy a staggered series of responders anywhere in the North to reinforce the ever capable Rangers, or deploy to an area without a Ranger patrol. This capability is limited in size but appropriate to the sorts of threats envisioned. Given the logistical and transportation difficulties inherent to Arctic operations, a

⁶² LCol Lachance et. al., (Aerospace Warfare Centre), *Projecting Power Trends Shaping Canada's Air Force in the Year 2019* (April, 2009), V.

⁶³ Elinor Sloan, "Canadian Defence Commitments: Overview and Status of Selected Acquisitions and Initiatives," University of Calgary, the School of Public Policy, SPP Research Paper (in cooperation with the Canadian Defence and Foreign Affairs Institute), 6:36 (December, 2013) and "Canadian Military Tests Drones in High Arctic," *CBC News* (September 19, 2014).

⁶⁴ These being Yellowknife, Inuvik, Rankin Inlet, and Iqaluit.

⁶⁵ Mark Riley, "Northern Watch Brief" (September 25, 2013).

small self-sufficient force is preferable, for instance, to the kinds of regiment level deployments and airdrops practiced from the 1940s to the 1980s.

The Navy has also stepped up its Arctic operations to rebuild the expertise it lost after the end of the Cold War. Technical issues surrounding communications, supply, and maintenance remain but real progress has been made. Meanwhile, the AOPS should provide the service with a new ice-operational capability that will be essential as increased maritime traffic demands a larger presence from not just the Navy but all the other government departments and agencies that rely on the CAF for platform support. Canada's situational awareness will, likewise, also have to be improved as activity increases. For the moment, however, it is sufficient to meet the country's needs. Surface ships check into Canada's reporting system (NORDREG) and follow Canadian law and regulations. Submarines remain a wildcard, however they present no immediate sovereignty or security threat.⁶⁶

Canada's military capabilities, as they exist today and as they are developing, are limited but suited to the threats they face. The CAF has a clear vision of what it needs from its forces and what it is seeking to accomplish.⁶⁷ It does not need a combat capability, since there is no one in the Arctic to fight. It does not need a large permanent presence, since there would be little for those troops to do. Meanwhile, the optics of that presence, while politically appealing, would have little impact on Canada's legal sovereignty position. Sovereignty is strengthened by demonstrating a genuine ability to operate in and control the Arctic. The CAF, in partnership with OGD, will have to police and assist foreign vessels operating in the Northwest Passage, respond effectively to emergencies and other unconventional security threats, while maintaining the situational awareness that will enable it to undertake those responsibilities. The learning curve in the Arctic is a shallow one where skills are developed slowly and over a long period of time. Still, the military is at least moving in the right direction.

⁶⁶ For a detailed analysis of this see: Adam Lajeunesse, "The Northwest Passage in Canadian Policy: An Approach for the 21st Century," *International Journal* 63:4 (Fall, 2008), 1045-47 and Adam Lajeunesse, "A Very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-1986," *Cold War History* 13:4 (November, 2013).

⁶⁷ For a more detailed framework than that provided by the *Canada First Defence Strategy* see: DND, *Canadian Forces Northern Employment and Support Plan* (November, 2012); DND, "CDS/DM Directive for the DND/CF in the North" (April 12, 2011); and Chief of Force Development, *Arctic Integrating Concept*.

▶ **About the Author**

Adam Lajeunesse, Ph.D., currently holds a SSHRC postdoctoral fellowship at St. Jerome's University. He is also a research associate at the Centre for Military and Strategic Studies (University of Calgary) and a co-investigator on a SSHRC Insight grant examining northern defence activities and Canadian-American relations. He has a book on the history of Canada's Arctic waters scheduled for publication with UBC Press in 2015 and is working on two more - covering icebreaker voyages and the history of Canadian military operations in the Arctic.