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Capability Challenges for the CAF in the Canadian Arctic

Lieutenant-Commander Scott Whyte

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INTRODUCTION

There has been ample discussion, analysis, prediction, and recommendation concerning the topic of the Canadian Arctic and the challenges that await. To prove this, one only needs to go to any academic literary search engine and type in Arctic, Sovereignty, or Climate Change topics.

This paper will not formulate into a debate or discussion on the legality of Canadian territorial claims, nor will it challenge the science behind climate change or look at the intricacies of the definition of Canadian Arctic Sovereignty. These topics will be briefly touched on to add context to areas that this paper will focus on. So, for the purposes of this paper, a few assumptions will be made:

1. The issue of Canadian territorial claims in the Arctic, specifically with regards to the Northwest Passage (NWP) and the internal waterways vice international seaway, is complex and in debate as its legality relates to UNCLOS¹;
2. Climate change is happening; the science is accurate and that the Arctic is warming, the ice coverage is in recession, and the navigable seasons are getting longer² and as referenced by J.R. Parkey, “Canada [*must*] make preparations for a rapid expansion of Arctic shipping ... the ships are coming.”³; and

¹ Whitney P. Lackenbauer. *Canadian Arctic Sovereignty and Security: Historical Perspectives*, (Centre for Military and Strategic Studies: University of Calgary, 2011), 388.

²*ibid.*, 383.

³ Jeffrey R. Parker. “Assessing Institutional Alternatives for Future Northwest Passage Governance.” *The American Review of Canadian Studies* 43, no.2 (2012): 172.

3. Regardless of one's position on, or the interruption of, "Canadian Arctic Sovereignty"⁴, Canada is required to maintain a measure of control or presence in the Arctic Domain for the protection of national interests, security and enforcement, environmental protection and municipal, provincial and federal services to the inhabitants.

With these assumptions in mind, this paper will focus on the discussion of Canadian capabilities within the Arctic (with a focus on the Canadian Armed Forces and other Government agencies like the Canadian Coast Guard, Border Services and the Royal Canadian Mounted Police) and touch on what capabilities are required to maintain an appropriate level of control or presence within the Canadian Arctic, what capabilities currently exist within Canada, and what are the gaps in these capability requirements. Finally, what should Canada do to close or mitigate these capability gaps moving forward into 2035 and beyond?

Currently, the Canadian Armed Forces (CAF) do not have the required capability to sufficiently respond to challenges (external threats, enforcement and surveillance, search and rescue, or humanitarian and disaster relief)⁵ that exist or will exist in the Canadian Arctic. To meet these challenges, a holistic and whole-of-Government approach⁶ or effort encompassing all agencies within the Government who have a responsibility in the north needs to be prioritized and made central to any government policies moving forward with regards to the Canadian

⁴ Joshua Leveques, "Canadian Arctic Sovereignty: Not So Strong at Home" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2019), 10.

⁵ Jacqueline Medalye, and Ryan Foster. "Climate Change and the Capitalist State in the Canadian Arctic: Interrogating Canada's Northern Strategy." *Studies in Political Economy* 90, no. 1 (2012): 97-99.

⁶ A.D. James, "Troops and Guns Can Not Defeat Global Warming Alone: A Whole of Government Approach to Sovereignty and Security in the Arctic" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2018), 4.

Arctic. These initiatives should include cooperative policies and memorandums focused on better operability, sharing or multi-tasking of shared platforms and a shared or collective understanding of the capability requirements and a shared/cooperative procurement strategy for the tools, equipment and policy required to maintain Canada's abilities to detect, conduct surveillance, enforce and respond to these unique Arctic challenges.

BACKGROUND

Over the last few decades, several studies and academic papers on the effects of climate change within the Canadian Arctic have been conducted and with the tangible effects we see on the news and is being reported by the people who live in these areas. The information indicates that the annual temperatures have been increasing, the ice pack is seeing a reduction, and the navigable season in the Canadian Arctic is getting longer⁷. These factors, combined with the geographical fact that a direct route from the Atlantic to the Pacific via the NWP can reduce merchant shipping routes from the East Coast of the United States to ports in Asia by as much as 8,000 Kilometers⁸, make the prospects of an accessible and safe NWP very appealing to not only private industry, but countries looking to protect or grow their economic interests. In addition to these factors, there are estimations that almost 40% of the world's undiscovered resources and potentially as much as one-third of the world's future oil and natural gas resources could be in the Arctic and within the next century access able for exploitation⁹.

⁷ Larissa Pizzolato et al. "Changing Sea Ice Conditions and Marine Transport Activity in Canadian Arctic Waters between 1990 and 2012." *Climate Change* 123, no. 2 (2014): 161-164

⁸ Ibid., 162.

⁹ J.A. Coffin, "Arctic Sovereignty: Melting the Uncertainty" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2016), 6.

To add discourse to the Canadian Territorial debate, the degree to which Canada has claimed territorial rights in the Arctic, especially related to the NWP (Canada Claims the waters as an internal waterway¹⁰), is itself a point of disagreement. The majority of the International Community contests the methods in which Canada has decided to make this claim¹¹. To Further complicate Canada's position, the "internal Canadian territory" claim contradicts Article 8 of the United Nations Law of the Sea Convention (UNCLOS)¹², which Canada, ironically enough, agreed to and signed for ratification back in 1982, prior to making its own "internal Canadian Territory" claims around the NWP and the waterways in the Arctic. It is worth noting that while countries like the United States and Great Britain do not accept our claims as they relate to the waterways within the NWP, they do not contest any land claims within Canada's physical territory, therefore, this is more about access to shipping routes and natural resources verses actually threatening Canadian Soil.

During the Cold War, the Soviet Union was the alpha threat the Western world was focused on. The proximity of the Canadian North to The Soviet Union and the development of submarine-based weapons (ballistic missiles) that could deliver nuclear payloads to continental North America while Soviet submarines operated in maritime areas that were under the ice caps was a legitimate possibility and was most likely occurring. The prospects of mainland United States and their cities now being within Soviet reach was a real concern and force Arctic security and forced the issue to the forefront of government policy and discussion during the Cold War.¹³

¹⁰ Jeremy Seth Geddert. "Right of (Northwest) Passage: Toward a Responsible Canadian Arctic Sovereignty." *Canadian Journal of Political Science* 52, no. 3 (2019): 596-597.

¹¹ Whitney P. Lackenbauer, *Canadian Arctic Sovereignty and Security: Historical Perspectives* (Centre for Military and Strategic Studies: University of Calgary, 2011), 388.

¹² Ibid.

¹³ Adam Lajeunesse. "A very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-1986." *Cold War History* 13, no. 4 (2013): 518.

The fall of the Berlin Wall, the Collapse of the Soviet Union and the subsequent attempts by the West decades later to try and normalize relations with Russia, diminished the prospects of real military threat to the north and combined with the security blanket of the ice pack, made Arctic Security a problem for the next generation. While many Canadian Governments verbalized their desire to increase security and presence in the Arctic through various policies like the White Papers, Northern Strategy and Strong, Secure, and Engaged, minimal concrete action or follow through was ever really taken to build, improve, or upgrade Arctic capabilities¹⁴.

Over the last few decades, the Russians have increased their activities in and around the Arctic Region, especially concerning the challenge of Canadian air space¹⁵. These pushes have fostered a re-emergence of the security debate with regards to the Arctic; Russian Strategic bombers have encroached on Canadian Airspace, The Russian subsurface fleet has made published deposits and operations to the north pole, and more recently, Russian missile tests, either intentionally or unintentionally, have directly impacted Canadian territory via booster drop and falling debris notifications within Canadian Territorial waters¹⁶. China has now begun expressing interest in the Canadian Arctic to feed their requirement for and consumption of natural resources. However, the benefits of a shortened maritime transit from China to Western and European markets (which is what an ice-free NWP would provide) would positively affect the Chinese economy¹⁷. China have spent considerable effort establishing a fleet capable of

¹⁴ Jacqueline Medalye, and Ryan Foster. "Climate Change and the Capitalist State in the Canadian Arctic: Interrogating Canada's Northern Strategy." *Studies in Political Economy* 90, no. 1 (2012): 93-99.

¹⁵ Mathieu Landraiault. "Public Opinion on Canadian Arctic Sovereignty and Security." *Arctic* 69, no. 2 (2016): 165-166.

¹⁶ Bob Weber. "Potentially Toxic Russian space debris set to drop on Canadian Arctic," *Toronto Star*, 31 May 2016, last accessed 22 April 2022, [Potentially toxic Russian space debris set to drop on Canadian Arctic | The Star](#).

¹⁷ Jeremy Seth Geddert. "Right of (Northwest) Passage: Toward a Responsible Canadian Arctic Sovereignty." *Canadian Journal of Political Science* 52, no. 3 (2019): 595-596.

operating in ice, as well they have developed an Arctic Navigation Manual with a precise focus on the navigation of the NWP¹⁸. While the emergence of China's ambitions in the Arctic and Russia pushing the limits of the ADIZ, combined with their aggressive and unlawful actions in Ukraine, focus and attention is slowing reverting back to the security debates and renewed conversations from the Canadian Government, does this mean there is a legitimate military threat to the Canadian Arctic?

THE RUSSIAN MILITARY THREAT

While the actions of Russia to invade Ukraine shocked many, who were not in the intelligence or military communities, many questions have risen and been debated within the Canadian Military and Government¹⁹ about the potential of an increased Russian threat to the Arctic. Some assumptions and items to keep in mind when considering the Russian threat:

1. Canada is a member of the North Atlantic Treaty Organization (NATO), and as such, should Russia execute a hostile act against Canadian territory in the Arctic, Canada would invoke Article 5²⁰. As long as Russia believes that NATO is willing to honour any Article 5 declarations, that in itself should deter any military threat from Russia to the Canadian Arctic;

¹⁸ Peter MacNeil, "Submarines in the North: Challenges to Arctic Sovereignty and Security" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2018), 9.

¹⁹ Jacques Gallant. "Russia's invasion of Ukraine has pushed Canada to think about Arctic security," Toronto Star, 20 March 2022, Last accessed 22 April 2022, [Russia's invasion of Ukraine has pushed Canada to think about Arctic security - ProQuest](#)

²⁰ John Andreas Olsen. *Security in Northern Europe: Deterrence, Defence and Dialogue*, 1st ed. Vol.93. (Milton Park: Royal United Services Institute for Defence and Security Studies by Routledge Journals, 2018), 116.

2. Russia's current mandate or desire by its President is to restore the glory and boundaries of the old Soviet Empire²¹; Canada was never part of that old empire and most likely does not fit into those discussion points in Moscow, especially with the focus now being on Ukraine and other areas within Europe; and

3. The Arctic is extensive and vast, and there are few current infrastructures. As a natural consequence of the Arctic environment and the lack of current infrastructure, an unintentional "Scorched Ice" approach exists in the north²². Simply due to the expanse, geographical makeup, and lack of infrastructure, maintaining any freedom of maneuver to support action, should a foreign military force invade the Canadian Arctic, and the abilities to maintain any supply lines of communication required to support a large expeditionary force would be somewhere between challenging and not possible on the viability scales.

Based on these assumptions or factors, there is support for the argument that, at this time, the Russians do not pose a legitimate military ground threat to the Canadian Arctic security or territorial integrity. The nature of the Arctic environment, even with the effects of climate change, is an excellent mitigator against this type of threat, given the current conditions.

²¹ Eliza Mackintosh. "What does Putin want in Ukraine? The Conflict explained." CNN, Last Updated 28 February 2022, [What does Putin want in Ukraine? The conflict explained - CNN](#).

²² Ciara Sebastian. "New Power, New Priorities: The Effects of UNCLOS on Canadian Arctic Foreign Policy." *Polar Journal* 3, no. 1 (2013): 140.

CANADIAN ARCTIC ISSUES

So, if the Russians are not the biggest threat to Canadian Arctic security, who or what is? There is a lot to be said about sharing a landmass with arguably the world's top superpower, the United States of America. Not discounting the Article 5 notions addressed above, the collective defence of North America, with overwhelming support from the USA, has greatly aided in mitigating any real potential threats to Canada. Unfortunately, much of the early warning and detection infrastructure is old and reaching the end of its life cycle²³. The requirements to modernize the Northern Warning Systems have been highlighted in SSE through renewed commitments to revitalize Canadian commitments to the North American Aerospace Defense Command (NORAD) and early warning systems in the Arctic²⁴. These systems, combined with the vastness of the landmass of the Arctic and the sparsity of population, mean that there are issues with maintaining continuity of a common operating picture or domain awareness²⁵, meaning that large portions of the activities in the north go unobserved. There is no mandatory vessel tracking or reporting systems in the north and the majority of the information that is received on commercial shipping within the Canadian Arctic is initiated by these vessels through the voluntary reporting mechanisms that currently exist. This lack of domain awareness means that criminal activities are, in many cases, unchecked or unmonitored. As alluded to by LCdr Mike Bielby when he spoke at the 2019 RCMI Defence and Security Studies Conference,

²³ Andrew Wood. "Canada, the Freeloader, rather than a Vested Defence Partner in NORAD and the Defence of North America." *Canadian Military Journal* 21, no. 2 (2021): 1.

²⁴ Canada. Department of National Defence. *Strong, Secure, Engaged: Canada's Defence Policy*. Ottawa: National Defence, 2017. [Strong, Secure, Engaged. Canada's Defence Policy. \(publications.gc.ca\)](https://publications.gc.ca/collections/collection_026/978-1-101-70000-0.pdf)

²⁵ David C. Gardam, "The Northwest Passage: A Prudent Management Strategy" (National Security Studies Programme Course Paper, Canadian Forces College 2007), 40.

“threats to the Canadian north are not so much from foreign state actors or a military threat but from dark vessels criminal organizations, or groups or individuals who look to profit from illegal activities.”²⁶

It is essential to keep things in perspective; even with the effects of climate change, the Arctic is still an unforgiving environment, and the size, remoteness and lack of substantial infrastructure do not provide an appropriate means for drug trafficking, smuggling of precious metals or stones or even piracy. The more likely threats affecting Canada's north would be illegal fishing, improper adherence to or implementation of environmental protection measures and laws or small-scale trafficking of illicit contraband into some of the more isolated communities. These are all activities that require a government capability to surveil, detect, enforce and deter and the ability to execute these functions are critical elements of maintaining control or demonstrating one's sovereignty within one's territory²⁷.

The reduction in ice coverage, leading to an increased navigable season, translates into increased maritime traffic. Ecotourism, adventure seekers, increased frequency of northern resupply transits to the northern communities, the increasing necessity for vessels supporting surveying, mapping and scientific study increase the potential of emergency, accidents or disasters at sea which require a search and rescue capability. As traffic increases in the Arctic, Canada needs to be able to support emergency services and rescue²⁸.

REQUIRED ARCTIC CAPABILITIES

²⁶ “2019 RCMI Arctic Security Conference Panel 1: Arctic Defence and Security Challenges.” YouTube video, 3:29. Posted by “RCMI,” 3 May 2019. [\(12\) 2019 RCMI Arctic Security Conference Panel 1: Arctic Defence and Security Challenges - YouTube](#)

²⁷ Jacqueline Medalye, and Ryan Foster. “Climate Change and the Capitalist State in the Canadian Arctic: Interrogating Canada’s Northern Strategy.” *Studies in Political Economy* 90, no. 1 (2012): 99

²⁸ *Ibid.*, 111.

Maintaining an accurate representation of the ability to build and maintain up-to-date Domain Awareness in Canada's North is necessary for allowing Canada to respond to challenges and emergencies.

CURRENT CAPABILITIES

Currently, Canada has limited capabilities within the CAF inventory to maintain an appropriate level of presence and capacity within its Northern territory. For this section, "appropriate" is defined as an ability to effectively respond to a SAR, a disaster or humanitarian event combined with the ability to maintain reliable and accurate Domain Awareness within Canadian Territory in the support of the maintenance and application of enforcement (military, civil, environmental) capacities to protect the people, environment and Canadian National interests.

Search and Rescue Response

At current, the ability to respond to a search and rescue event in the Arctic is suspect at best³². The CAF manages the bulk of the search and rescue's air component, which is the most critical element within the context of the Arctic.

The CAF does have assets located sparsely throughout the Arctic on a seasonal basis. However, these assets do not have the full capability to support the SAR and Governmental control initiatives within Canadian Arctic Territories³³. Within the Canadian air inventory for SAR, the CAF uses four aging Twin Otter aircraft out of Yellowknife; C-130 Hercules out of

³² A.D. James, "Troops and Guns Can Not Defeat Global Warming Alone: A Whole of Government Approach to Sovereignty and Security in the Arctic" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2018), 9-11.

³³ Michael Byers and Suzanne Lalonde, "Who Controls the Northwest Passage?" *Vanderbilt Journal of Transitional Law* 42, no.4 (2009), 1197.

CFB Trenton in Ontario; Cormorant helicopters out of Comox British Columbia on the West Coast and Newfoundland and Labrador on the East Coast. For the most part, with these assets stationed in "nonactive" bases, response times are in question. Looking at predicted survival times within the Arctic, for both a maritime and land event, Leveque noted that survival time on land could be as low as 6 hours³⁴, whereas, with the summer water temperature of on average of 0 degrees, sea survival time would be in the range of 45mins³⁵, making the urgency of a response, that much more important. In October of 1991, the CAF responded to a SAR event in the vicinity of Elsmere Island within the Canadian Arctic, s C-130 dispatched from Trenton required over 8 hours to arrive on-station³⁶.

While the RCAF's Twin otters are in the process of retirement and procurement of the new CC295 Kingfisher is underway, the new aircraft stationed at the pre-existing bases, as well as the fact that they are slower than the aircraft they are replacing, offer little at this time to improve Canada's air response to a SAR event in the north.

From a Maritime perspective, the Royal Canadian Navy has limited capability to operate in the Arctic at this time. The Harry DeWolf Arctic Offshore Patrol Vessel procurement increases the RCN's footprint within the Arctic. However, the ship itself lacks fundamental "military capabilities" and, based on its limited command and control capacity and designation as a patrol or non-combat vessel, falls short of a significant capability increase for the CAF³⁷. It is

³⁴ Joshua Leveques, "Canadian Arctic Sovereignty: Not So Strong at Home" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2019), 22.

³⁵ Dr. C.J. Brooks, "Survival in Cold Water, A Report Prepared for Transport Canada." Survival Systems Limited (2001): 13-15. [Prediction of Survival Times in Cold Water \(nts.gov\)](https://www.nts.gov/prediction-of-survival-times-in-cold-water)

³⁶ Joanna Calder, "Boxtop 22 Commemorative Cairn: A Place of Memory and Healing." Royal Canadian Air Force, 2016, 3. Accessed 22 Apr 2022. [News Article | Boxtop 22 commemorative cairn: "A place of memory and healing" \(forces.gc.ca\)](https://www.forces.gc.ca/news-article/boxtop-22-commemorative-cairn-a-place-of-memory-and-healing)

³⁷ Adam Lajeunesse. "Canada's Arctic Offshore and Patrol Ships (AOPS): Their History and Purpose." Marine Policy 124, (2021): 4-5.

important to note that in 2021, HMCS Harry DeWolf transited the Northwest passage on route to circumnavigating Continental North America³⁸. This transit from the Atlantic to the Pacific via the NWP was the first RCN North West Passage transit since the HMCS Labrador in the 1954s³⁹, showing that the RCN has improved its Arctic footprint capability domestically. The HDW class is still limited to first-year ice, of one meter in thickness, with multi-year inclusions; the ship is not capable of operating in the Arctic during the winter seasons. Also, combined with this the continued sparsity of the RCN presence in the area and an overworked, aging Canadian Coast Guard fleet, the Maritime capability to respond to an emergency event, either of the human, environmental or military nature, is still limited.

The increases in maritime traffic within the Arctic as a result of expanding Sea Line of Communication (SLOC), expanded fisheries due to the reduction of the ice pack, adventure seekers, and ecotourists⁴⁰, combined with the increases in trans-Arctic Flight Lanes⁴¹, the possibilities of a SAR or mass casualty events, environmental disasters, or other climate or civil emergencies all require a capability upgrade and expansion in order for Canada to provide the appropriate levels of support and control.

³⁸ Brent Richter. "HMCS Harry DeWolf Docks in North Van; Historic Voyage." *North Shore News*, Oct 06, 2021. [HMCS Harry DeWolf docks in North Van; Historic voyage - ProQuest \(oclc.org\)](https://www.proquest.com/oclc.org)

³⁹ Whitney P. Lackenbauer. "HMCS Labrador." Mulroney Institute of Government Arctic Operational Histories, (2017): 21.

⁴⁰ "2019 RCMI Arctic Security Conference Panel 1: Arctic Defence and Security Challenges." YouTube video, 3:29. Posted by "RCMI," 3 May 2019. [12\) 2019 RCMI Arctic Security Conference Panel 1: Arctic Defence and Security Challenges - YouTube](https://www.youtube.com/watch?v=12)

⁴¹ Joshua Leveques, "Canadian Arctic Sovereignty: Not So Strong at Home" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2019), 19-20.

Air Defense Identification Zone

With the expansion of the Canadian Air Defense Zone (ADIZ) to include the Arctic Archipelago⁴², the need for a modernization of the Royal Canadian Airforce's capabilities becomes more apparent. Canada currently relies on an aging fleet of CF-18 Hornets to enforce and maintain its sovereignty and territorial integrity. The CF-18s themselves have limitations, as they are primarily operated out of Cold Lake Alberta and Bagotville Quebec and rely on Air-to-Air refueling to maintain the station and conduct any meaningful patrols of the ADIZ. With Canada retiring its C-130 AARs and the remaining support provided by two CC-150ss, converted Airbus A310s⁴³, these aircraft have limitations imposed by the available infrastructure, vastness, and extreme weather conditions which all have an impact on the aircraft's resilience and operation windows. They cannot provide adequate AAR support to Canada's CF-18s in the Arctic.

The importance of maintaining the capability to enforce or patrol the Canadian ADIZ in the North is becoming more apparent in the last decade. While there is a limited threat to a Russian ground incursion into North America (for the reasons mentioned in the above sections), the Russian Air Force routinely challenges the limits of the ADIZ. Events like the Russian Bear have highlighted this increasing activity, with Canadian CF-18 required to respond⁴⁴

⁴² "Expanded Canadian ADIZ." Ops Group, Accessed 22 April 2022. <https://ops.group/blog/expanded-canadian-adiz/>

⁴³ Joshua Leveques, "Canadian Arctic Sovereignty: Not So Strong at Home" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2019), 13-15.

⁴⁴ Associated Press. "Canadian jets intercept 2 Russian bombers near North American coastline: NORAD." The Associated Press, Last Updated 2 February 2019, [Canadian jets intercept 2 Russian bombers near North American coastline: NORAD - National | Globalnews.ca](https://www.globalnews.ca/news/canadian-jets-intercept-2-russian-bombers-near-north-american-coastline-norad/).

The current events in Ukraine dominating the news cycle and the world becoming more concerned with Russia's willingness to execute a military operation against a souvenir neighbor have increased the debate in Canada's parliament over military capabilities⁴⁵. The Canadian Prime minister has declared that the F35 Fighter will replace the CF18⁴⁶. However, even if the procurement process were to expedite, it would still be some time before these new aircraft were declared "Operationally Ready" and, in a position, to defend the Canadian ADIZ⁴⁷. These factors do not address the overarching issue of the need for an AAR capability to support whatever Canadian Fighter is required to respond to any issues within the Arctic air space. As noted by Leveque:

"The loss of the tactical AAR capability combined with the expansion of the ADIZ serves to cripple-to-cripple Canada's ability to monitor and control its sovereign airspace jeopardizing its claim in the arctic."⁴⁸

The air capability of the RCAF is not sufficient to support the ADIZ requirements in the North, nor can they adequately support the growing SAR and Domain Awareness requirements within the Arctic. These factors highlight a needed capability to assert Canadian Control and influence within its Arctic Territories and identify the Capability gaps within the RCAF. With the vastness of the Arctic, the limited infrastructure to support Land Lines of Commination and Sea Lanes of Communication, the importance of a robust air capability in the North is valid, not

⁴⁵ Ashley Burke. "Military readiness 'one of the things that keeps me awake at night' says Canada's top soldier." CBC News, Last Updated 11 March 2022, [Military readiness 'one of the things that keeps me awake at night,' says Canada's top soldier | CBC News](#).

⁴⁶ Rob Gillies. "Canada picks the F-35 in fighter replacement competition." The Associated Press, Last accessed 22 April 2022, [Canada picks the F-35 in fighter replacement competition \(yahoo.com\)](#).

⁴⁷ Lee Berthiaume. "Questions swirl as Canada chooses to buy F35 stealth fighter." The Canadian Press, Last Updated 28 March 2022. [Canada chooses to buy F-35 fighter jet after years of delays | CP24.com](#).

⁴⁸ Joshua Leveques, "Canadian Arctic Sovereignty: Not So Strong at Home" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2019), 15.

only for military purposes but for civil, emergency and economic support throughout the North and the air plays an equally important role in the development and maintenance of the Domain Awareness and the development of the Common Operating Picture.

Domain Awareness

In supporting the Government of Canada's ability to predict, respond or mitigate the emergence of emergencies and threats and maintain governmental control and protection of the people, the environment and the culture, Domain Awareness is a critical enabler to supporting any of this. One needs to know who or what is operating in the area at any given time and where they are operating at; in any event, being "Devoid of a sense of awareness, the Government's ability to make sound decisions and to coordinate action is non-existent."⁴⁹

The introduction of the Harry DeWolf Class to the Royal Canadian Navy has increased their capabilities to operate in the Arctic. This class of ship is limited in its ability to contribute to a Common Operating Picture (COP) outside of the line of sight. Much of the ship's processing systems are unclassified systems that do not directly tie into the modernized and secret level Link systems used to populate, distribute, and maintain the COP. While supporting the maintenance of the COP, the HDW Class, based on the constraints of its unclassified Command and Control System and a lack of a long-range Air surveillance RADAR, must transmit any contact data it develops to a Data Fusion center ashore for inclusion in a classified COP. The updated COP would then be re-transmitted to the ship via its secret data network in the format of a static product for its operations team as a static picture of the area. The requirement for manual

⁴⁹ David C. Gardam, "The Northwest Passage: A Prudent Management Strategy" (National Security Studies Programme Course Paper, Canadian Forces College 2007), 34.

updating and retransmission in an area known to be challenging regarding data transmission and connectivity would mean that requirements for real-time, time-sensitive, or accurate picture compilation would be a challenge. When this paper was written, the author did not have access to an after-action report or similar documentation that the RCN would have completed following Harry DeWolf's transit through the NWP. Critical assessments and evaluations from the ship's operations team on their abilities to effectively manage their contributions to the COP will be critical to any planned initiatives to support improvements to Domain Awareness Capabilities in the Arctic.

Initiatives of the Canadian Space Agency regarding the utilization of the RADARSAT Constellation and the further development of projects of the Polar Epsilon project will increase the capabilities⁵⁰ of the supporting agencies within the government to develop and maintain a meaningful and accurate COP as it relates to the Canadian Arctic. These projects highlight successful initiatives and innovation through other government departments and civilian organizations to better support Canada's operating and control requirements in the north.

Building on the initiatives of the Canadian Space Agency and Canada's commitments to upgrade and reinvigorate the Northern Warning System (NWS) and the modernization of Canadian infrastructure supporting NORAD, as outlined in Strong Secure Engaged⁵¹, represents a renewed focus on the security of North America. New focus and concerns brought on by Russian aggression in Europe and requirements from NATO that its members increase their

⁵⁰ B.G.W. Whitehouse et al. "Developing RADARSAT's METOC Capabilities in Support of Project Polar Epsilon." *Defence Research and Development Canada*, (2005): iii.

⁵¹ Canada. Department of National Defence. Strong, Secure, Engaged: Canada's Defence Policy. Ottawa: National Defence, 2017. [Strong, Secure, Engaged. Canada's Defence Policy. \(publications.gc.ca\)](https://publications.gc.ca)

defence spending to 2% of the GDP again highlight the importance of pursuing these initiatives and increasing capabilities.

The Rangers

The Canadian Rangers have a vital and currently understated role in the increased capabilities within the Arctic. The Canadian Rangers have the potential to support the building and maintenance of domain awareness with restructuring, retraining and improved mandates, which could prove to be a valuable resource in supporting enforcement, search and rescue support, as well as response to growing environmental and other challenges in the Northern communities.

So, who are the Canadian Rangers? Currently, the Canadian Rangers are not included in enforcement capacities or mandates by the Government of Canada⁵². While they do fall under the umbrella of the Canadian Armed forces, they are primarily used in roles that support regional HUMINT or support other CAF organizations or operations in the Arctic area of responsibility. The Canadian Rangers were established in 1947⁵³ as a part-time reservist or militia presence in the Canadian North. They consist of members of the local Inuit and First Nation Communities, a volunteer Force armed with No.4 Lee Enfield rifles, GPS, First Aid Kits and short-wave radio. The Rangers are being issued new Sako Rifles, which has been a slow process but are also now issued with Iridium satellite phone, which can be unreliable, given the current availability of satellites in the North⁵⁴. The Canadian Rangers are not a full-time force, and members only

⁵² Cameron Cribb. "The New Cold War: Lessons for Canada in the Battle for Arctic Sovereignty, Security, and Resources." Master's thesis, Royal Military College of Canada, 2010), 34.

⁵³ Ibid., 35

⁵⁴ A.D. James, "Troops and Guns can Not Defeat Global Warming Alone: A Whole of Government Approach to Sovereignty and Security in the Arctic" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2018), 16.

receive their pay and benefits while the CAF actively employs them in operations, training, or other support directives.

While the Canadian Rangers have seen an increase in numbers (around 1500 members in 1987 to close to 5000 individuals today⁵⁵), the increased support for the Rangers has been continually referenced in the Northern Strategy of 2008⁵⁶ and Strong Secure and Engaged⁵⁷. However, even with these increases in numbers and verbalized commitments from the Government, little has been done to increase the Canadian Rangers' operational capabilities.

"When a ranger enlists into a CRPG he or she is only issued with a ranger hoodie, hat, t-shirt, red toque, CADPAT pants, boots, high visibility vest, gortex jacket, pants and either a new Sako or Lee Enfield rifle .44 They don't receive any additional equipment such as arctic sleeping bags, rucksack, additional CADPAT uniforms including thermal underwear, Arctic socks etc, which is part of a normal issue of equipment for a Regular or Primary Reserve soldier."⁵⁸

The Rangers currently lack the Command-and-Control Structure, permanent organizational or information security structure to allow real time connection to CAF data management or COP Systems. These factors mean they have limited access to Domain Awareness and COP products, and through the limited communications systems, the Rangers cannot contribute to the development and maintenance of Domain awareness in a meaningful manner. Most of the Ranger's contributions are limited to providing Arctic Environmental

⁵⁵ Ibid.

⁵⁶ Indian and Northern Affairs Canada. "Canada's Northern Strategy: Our North, our Heritage, our Future." Government of Canada, (2009): 16.

⁵⁷ Canada. Department of National Defence. Strong, Secure, Engaged: Canada's Defence Policy. Ottawa: National Defence, 2017. [Strong, Secure, Engaged. Canada's Defence Policy. \(publications.gc.ca\)](https://publications.gc.ca/collections/collection_026/978-1-155-65441-1.pdf)

⁵⁸ A.D. James, "Troops and Guns Can Not Defeat Global Warming Alone: A Whole of Government Approach to Sovereignty and Security in the Arctic" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2018), 16.

training to the CAF and acting as guides and local experts to other CAF Training and Operational Missions in the Arctic.

While recruitment within the CAF is currently a challenge⁵⁹, the CAF would find it challenging to increase a permanent footprint in the Arctic and procure the required equipment and support infrastructure to carry a heavy price tag. Better or more focused efforts to revitalize and operationalize the Canadian Rangers could be critical to improving Canadian capabilities in the Arctic. Offering the Inuit and First Nations peoples in the region opportunity for full-time pay and benefits by turning the Rangers into a full-time force with similar support as any other CAF group or Formation could be a viable option for the Canadian Government. The Rangers have the potential to be the Arctic force for Canada that could support a wide array of National, Provincial, Civil and other levels of government and capability.

CONCLUSION

The effects of climate change are scientific fact⁶⁰ and as a result of the changes to the physical Environment bring forward the probabilities of increased traffic (Air, Land, Maritime) within the North as potential trade routes, availability of Natural Resources and Air Routes and Defense requirements all present themselves. With this potential for increased usage based on the increased traffic patterns we are seeing today,⁶¹ the requirement for Canada to be able to establish control and influence in the Arctic is ever more pressing.

⁵⁹ Jason Chetwynd, "Accepting the Inevitable and Planning for the Future Needs of the CAF" (Joint Canadian Staff Programme Course Paper, Canadian Forces College 2018), 23-24.

⁶⁰ Whitney P. Lackenbauer. "Canadian Arctic Sovereignty and Security: Historical Perspectives." *Centre for Military and Strategic Studies: University of Calgary*, (2011): 383.

⁶¹ "2019 RCMI Arctic Security Conference Panel 1: Arctic Defence and Security Challenges." YouTube video, 3:29. Posted by "RCMI," 3 May 2019. [\(12\) 2019 RCMI Arctic Security Conference Panel 1: Arctic Defence and Security Challenges - YouTube](#)

While there is debate over the actual military threat to the area, this paper argues that other than challenges to the AIDZ, the military threats to Canada's Arctic should not be the priority factor for the focus of Canadian Strategy or policy for the Arctic at this time (does not imply that there is Zero Military Threat to Canada), the priorities should be domestic support and leveraging NORAD modernization to not only support a foreign military deterrence but support more robust domestic emergency preparedness and response capabilities. Canada needs to support Search and Rescue effectively, Enforcement of National Law, Environmental Protection, support Civil requirements to the people and maintain the initiatives and requirements as outlined through our commitments to NORAD and NATO⁶². The ability to have an accurate and appropriate level of Domain Awareness in the Arctic seems to be a standard linkage through supporting the AIDZ, Search and Rescue Capabilities, enforcement of Canadian Law, protection of the Environment and supporting our commitments to NORAD, to name a few.

Early Warning and Detection can support SAR; having assets on patrol to support SAR goes hand in hand with supporting the building of the COP and also puts assets in place that can then support other enforcement efforts of the other Agencies within Canada. Based on the history of funding for the various enforcement agencies, as well as the CAF, the ability or willingness to fund large scale procurement projects for each agency for specific use in the Arctic is unlikely; therefore, unity of effort amongst the Government, better policies and memorandums that allow for a more streamlined line approach to shared mandates, avenues of cooperation, and overall integration. A prime example would be that the Canadian Coast Guard and the RCN have mandates to be in the Canadian Arctic, so combining some of the responsibilities and capabilities

⁶² Canada. Department of National Defence. Strong, Secure, Engaged: Canada's Defence Policy. Ottawa: National Defence, 2017. [Strong, Secure, Engaged. Canada's Defence Policy. \(publications.gc.ca\)](https://www.publications.gc.ca)

or moving the Coast Guard under the Defense umbrella may be more palatable to the fiscal planners. By Combining the CCG and CAF under the same departments, the RCN could leverage the Arctic Capabilities and expertise already present in the CCG. Combining the Departments would allow for combined mandates, share capabilities, and bring CCG spending under the defence budget, which would push Canada closer to the 2% of GDP spending as is standard for NATO members⁶³; this is an area where Canada is falling behind in our support to NATO⁶⁴.

The Canadian Rangers offer the Government of Canada a great opportunity. Due to the challenges to the Inuit and First Nations Peoples' tractional ways of life and self-support due to the physical effects of climate change⁶⁵, there could be an opportunity to change the structure and mandates of the Canadian Rangers. The Rangers could be developed into a more operationally capable entity as a full-time option with full-time pay. Given more responsibilities and capabilities with regards to their abilities to contribute to the Domain Awareness in a more meaningful manner, they could better support OGDs in their mandates of environmental protection, surveillance, offer more robust capabilities to support Search and Rescue, as well as disaster response, protection of culturally significant sites, enforcement or aid to civil power activities with regards to national and provincial laws and regulations as well as providing an

⁶³ Interfax. "Stoltenberg hopes by 2024 15 NATO members will spend more than 2% GDP on defense." Interfax: Ukraine General Newswire, last updated 14 February 2018, [Stoltenberg hopes by 2024 15 NATO members will spend more than 2% GDP on defense - ProQuest](#)

⁶⁴ "Canada Closer to military-spending target: Damage done by COVID to economy has increased Defense's share of GDP." Canadian Press, Last Accessed 22 April 2022. [Canada closer to military-spending target: Damage done by COVID to economy has increased defence's share of GDP - ProQuest \(oclc.org\)](#).

⁶⁵ J.D. Ford and B. Smit. "A Framework for Assessing the Vulnerability of Communities in the Canadian Arctic to Risks Associated with Climate Change. Arctic 57, no. 4 (2004): 396.

Arctic arm of the CAF capable of defending or protecting Canadian Sovereignty should it be challenged.

Canada does not possess the required capabilities to exercise the appropriate levels of control within its Sovereign Arctic Territory. In order to meet this capability requirement, Canada needs to focus on areas of Domain Awareness, Search and Rescue, and enforcement of the AIDZ, which will give Canada the Capabilities required. Focusing on these areas while maximizing the opportunity for shared mandates and interoperability between Federal and Provincial Agencies will put Canada in a much better position to meet the growing challenges of the Canadian Arctic.

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