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SUBMARINES IN THE NORTH: CHALLENGES TO ARCTIC SOVEREIGNTY AND SECURITY

LCdr Peter MacNeil

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Exercise Solo Flight

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LCdr Peter MacNeil

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SUBMARINES IN THE NORTH: CHALLENGES TO ARCTIC SOVEREIGNTY AND SECURITY

INTRODUCTION

The Arctic is often at the centre of the challenges regarding Canadian sovereignty and security. Continued global climate change, or global warming, is resulting in a gradual reduction in the polar ice caps. As climate change progresses, decreasing Arctic ice invites potential incursions into the Canadian Arctic maritime boundaries. “Canada’s ability to detect and monitor such territorial incursions and to enforce sovereign claims over its Arctic territory in such cases has been questioned.”¹

The Government of Canada has a history of an unwavering claim to the Canadian Arctic Archipelago. The area of the Canadian Arctic encompasses forty percent of the national landmass.² Generations of Canadian and their governments, from John Diefenbaker in the 1950s to Justin Trudeau today, each has proclaimed the importance of the Arctic to Canada. In 1985, Prime Minister Mulroney worked to establish that the Canadian Arctic and its waterways were internal waters as defined by the International Maritime Organization. In response to the US Icebreaker *Polar Sea* transiting the Northwest Passage without Canadian consent, Mulroney used straight baselines as a means to claim those waterways internationally. In 1987, Mulroney confronted President Ronald Regan on the issue and declared that the Arctic Archipelago was to

¹ Matthew Carnaghan and Allison Goody, *Canadian Arctic Sovereignty* (Ottawa: Library of Parliament, 2006), 1.

² “Canadian High Commission in London focuses on Canada’s Arctic,” last modified 18 March 2013, http://www.canadainternational.gc.ca/united_kingdom-royaume_uni/bilateral_relations_bilaterales/arctic-arctique.aspx?lang=eng

be considered Canadian sovereign territory.³ To this day, however, Canada continues to encounter friction with the United States, in that the US fails to recognize Canada's claims.⁴ This suggests that bilateral agreements or memoranda of understanding between the governments are necessary.

As global climate change and the international demand for fossil fuels grows, the world is looking to the Arctic as the next frontier for trade routes and vast natural resources. It is within Canada's interests to be prepared for this trend towards northern expansion and ensure the safety, sovereignty, and particularly the security of the Canadian Arctic.

Canada's new defence policy, *Strong Secure Engaged* (SSE) refers to the renewed commitment to sovereignty in Canada's North. "[Canada] will continue to carefully monitor military activities in the region and conduct defence operations and exercises as required."⁵ Additionally, the policy highlights Canada's intent to collaborate with allied Arctic nations, "including the United States, Norway and Denmark, to increase surveillance and monitoring of the broader Arctic region."⁶

This paper will demonstrate that global climate change, rising international Arctic interests, and lack of anti-submarine capability in the Arctic, are significant factors that the Canadian Government must look to greatly enhance in supporting the ability to monitor and defend the Canadian Arctic against sub-surface threats.

³ Adam Lajeunesse, *Lock, Stock, and Icebergs: A History of Canada's Arctic Maritime Sovereignty* (Vancouver: UBC Press 2016), 4.

⁴ Heubert & Lajeunesse, *From Polar Sea to straight baselines: Canadian Arctic policy in the Mulroney era*, (Calgary: Centre for Military and Strategic Studies, 2017)

⁵ Government of Canada *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 90.

⁶ *Ibid.*

First, this paper will discuss the changing Arctic environment and how those changes are influencing other nations Arctic interests. Second, foreign Arctic ambitions in relation to Canadian Arctic sovereignty and security will be explored. Third, this paper will address options for Canada in enhancing Arctic sovereignty and security through the prioritization of submarines operations.

ARCTIC DOMAIN

The Arctic is believed to contain “enormous deposits of oil and gas.”⁷ As the Arctic waterways become free to navigate for greater periods of the year, it can be anticipated that several nations will exhibit a renewed emphasis in northern exploration. The Center for American Progress reports that the Arctic, “is warming two times faster than any other region on Earth, ... sea-ice volume has shrunk by 75 percent since the 1980’s.”⁸ These climate change effects are likely to result in ice-free summers in the Arctic within the next century.⁹ This is likely to lead to increased use of an ice-free Northwest Passage as an internationally recognized global trade route. The availability of which will allow linkages into the Russian, European and Asia, particularly Chinese, markets through direct northern trade routes, such as the Russian North Sea route.¹⁰

⁷ “Arctic”; National Geographic Society, Last accessed 31 October 2017
<https://www.nationalgeographic.org/encyclopedia/arctic/>

⁸ Cathleen Kelly, Michael Conathan, and Vikram Singh, Kelly, "Helping the Arctic Council Find its True North: Priorities for Secretary Kerry as He Prepares to Take on the Chairmanship of the Arctic Council" (Centre for American Progress, 2014), 1

⁹ *Ibid.*

¹⁰ R.E. Woodards, “Back to The Future: NORAD, Sovereignty and Anti Submarine Warfare in The Arctic” (Joint Command and Staff Course Solo Flight Paper, Canadian Forces College, 2014), 4.

Charles Perry Stacey, a military historian, stated that “Generals January and February mount guard for the Canadian people all year round.”¹¹ Stacey was referring to the unforgiving Arctic environment as a deterrence to anyone who may wish to enter Canada through the North. Prime Minister Stephen Harper was a strong proponent of the need for Canada to enhance regional sovereignty in the Canadian Arctic. Harper stressed that Canada could no longer rely on harsh Arctic environment as a means to discourage foreign activity in the Canadian Arctic.¹² While the situation in the Arctic was, and appears to be very peaceful and cooperative, there exists a need for Canada to enhance its ability to enforce its sovereignty in the North, to monitor increased international shipping and to project security in the undersea of the of the Canadian Archipelago.¹³

The potential for an ice-free Northwest Passage and North Sea Route from such climate change could translate into a significant increase in maritime shipping and access to natural resources. As an example, global climate change models predict that by 2050 the entire Russian coastline will be ice-free during the late summer.¹⁴ Global climate change is resulting in less ice in the Arctic, which will see in increase in maritime transits, but potential aggressor’s submarine activity is not reliant on ice-free areas. For example, Russian submarines, “have utilized both the Northern Sea Route and the Trans-Polar Route to transfer from their Northern to Pacific Fleet.”¹⁵

¹¹ Steven Chase, “Myth versus reality in Stephen Harper’s northern strategy,” last modified 17 January 2014, <https://beta.theglobeandmail.com/news/national/the-north/myth-versus-reality-in-stephen-harpers-northern-strategy/article16397458/?ref=http://www.theglobeandmail.com&>

¹² P. Whitney Lackenbauer, and Ryan Dean, *Canada’s Northern Strategy under Prime Minister Stephen Harper: Key Speeches and Documents on Sovereignty, Security, and Governance, 2006-15*. Documents on Canadian Arctic Sovereignty and Security, Number 6, 2016, 1

¹³ *Ibid.*

¹⁴ Office of Naval Research, Naval Ice Center, Oceanographer of the Navy, and the Arctic Research Commission, “Naval Operations in an Ice-free Arctic Symposium: Final Arctic Report” (Whitney, Bradley & Brown, Inc, 2001), 2-8.

¹⁵ Alfred S McLaren “The Evolution of the Arctic Submarine” (Department of Geography, University of Colorado, n.d.), 393-394

Therefore, it will be important for Canada to capitalize on the ice-free areas to monitor waterways or develop better under-ice capabilities.

ARCTIC SECURITY

Former Associate Director for Military and Strategic Studies and research fellow at the University of Calgary, Professor Rob Huebert is a renowned author on Arctic sovereignty and security. In his article, *Who Best Defends our Arctic*, written in 2006 during the Federal election campaign, Huebert indicated that more needed to be done; “While it is necessary to know who is in the Arctic and what they are doing there, such knowledge is pointless unless the ability to act exists.”¹⁶ In 2011, Huebert emphasised the need for Canada to enhance its ability to defend its Arctic territory on the basis of the increasing international interest in the use of Arctic waterways, including the Northwest Passage.¹⁷

As national submarine operations are typically classified by individual nations, there is little evidence after 1979 of the US or other allied submarine activity within Canadian waters. Although data does support that between 1957 and 1962, US submarines have operated in and sailed over fifty thousand kilometres in the Arctic domain.¹⁸ Data collected from US submarine operations in the Arctic during periods of the 1950s, 1970s and 1990s, is a testament to the plethora of undersea activity in the North.¹⁹ It was the release of information from former Vice-President Al Gore that gave any indication that there was significant US submarine activity in

¹⁶ Rob Huebert, *Who Best Defends Our Arctic* Globe and Mail; last modified January 2006. <https://beta.theglobeandmail.com/opinion/who-best-defends-our-arctic/article727039/?ref=http://www.theglobeandmail.com&>

¹⁷ Rob Huebert, “*Climate Change and Canadian Sovereignty in the Northwest Passage*” (Calgary papers in Military and Strategic Studies. Occasional Paper Number 4, 2011), 384-385.

¹⁸ Rothrock, Drew A., Yanling Yu, and Gary A. Maykut. "Thinning of the Arctic sea- ice cover." *Geophysical Research Letters* 26, no. 23 (1999): 3469-3472.

¹⁹ *Ibid.*, 3469

the Arctic. There is limited de-classified information, yet, it points to significantly more submarine activity than has been released.²⁰

Other than allied activity, Russian and Chinese Arctic activity is potentially of greater concern. “Out of the eight Arctic nations, five have borders with the Arctic Ocean, and of these five, Russia possesses the largest coastline by far.”²¹ Twenty percent of the Russian GDP comes from north of the Arctic Circle; in contrast, most other nations are trying to develop Arctic trade and exploration.²² In continuing this comparison of those eight nations, Russia and the US both possess nuclear submarines (SSNs) that are capable of unrestricted transit in the Arctic as they are capable of remaining submerged under the ice flows for extended periods and surfacing through the ice as necessary.

Russia’s recent resurgence includes Arctic subsurface operations, most notably in their 2007 claim, “the Arctic is ours.”²³ A Russian submarine placed a plaque and Russian flag at the bottom of the Arctic Ocean, on the geographic North Pole.²⁴ Russia’s bold step at claiming the North Pole is a display of their significant prowess in Arctic undersea operations, a clear sign to Canada that there is much work to be done to be capable of defending the Arctic, particularly the undersea domain. Even as far back as 1961, then Soviet Minister of Defense, Marshal Malinovsky stated that Russia considered their, “nuclear submarines have mastered under-ice

²⁰ Rob Huebert “Submarines, oil tankers, and icebreakers” *Trying to understand Canadian Arctic sovereignty and security*. (International Journal, 2011), 818.

²¹ Margaret Blunden, "The New Problem of Arctic Stability." *Survival* 51, no. 5 (2009), 122

²² *Ibid.*

²³ R.E. Woodards, “Back to The Future: NORAD, Sovereignty and Anti Submarine Warfare in The Arctic” (Joint Command and Staff Course Solo Flight Paper, Canadian Forces College, 2014), 14

²⁴ Rob Huebert, “Is Canada ready for Russia’s hardball approach to the North Pole?” <https://www.theglobeandmail.com/globe-debate/is-canada-ready-for-russias-hardball-approach-to-the-north-pole/article16604726/>

navigation in the Arctic”²⁵ Canada has little ability to monitor extensive Russian undersea activity anywhere in the Arctic.

Vocal about their desire to develop a “Polar Silk Road,”²⁶ China has already built icebreakers and possesses nuclear submarines. China’s growing trade could mean it aspires to become a dominant trading partner north of the Arctic Circle.²⁷ China recently surprised the international maritime community with the promulgation of an Arctic maritime guidebook. The very detailed document is a Chinese publication that provides specifics on procedures to navigate the Northwest Passage!²⁸ “Entitled *Arctic Navigation Guide (Northwest Passage)*, the work was produced by China’s Maritime Safety Administration to assist the Chinese shipping companies.”²⁹

If Canada is to be in any way capable of monitoring its maritime boundaries in the Arctic, it is clear that subsurface activity should be considered a priority in order to equally monitor the air, surface and subsurface areas in the Arctic. Understanding that new technologies and alliances should be leveraged to employ a joint-interoperable approach with Canada’s allies to monitor and secure the Arctic. If the NORAD mission is to, “defend North America by outpacing all threats,”³⁰ then it is logical to draw the conclusion it is necessary to maintain near-peer capabilities to monitor not only the air and surface of North America but to be able to defend

²⁵ Alfred S McLaren “The Evolution of the Arctic Submarine” (Department of Geography, University of Colorado, n.d.), 392

²⁶ Reuters Staff. “China unveils vision for ‘Polar Silk Road’ across Arctic.” *Reuters*, January 26, 2018.

²⁷ R.E. Woodards, “Back to The Future: NORAD, Sovereignty and Anti Submarine Warfare in The Arctic” (Joint Command and Staff Course Solo Flight Paper, Canadian Forces College, 2014), 11

²⁸ Adam Lajeunesse, Chinese Prepare To Use The Northwest Passage, last modified 14 September 2016, <https://worldpolicy.org/2016/09/14/chinese-prepare-to-use-the-northwest-passage/>

²⁹ *Ibid.*

³⁰ “North American Aerospace Defense Command Official Website.” Last accessed 27 April 2018, <http://www.norad.mil/AboutNORAD/Vision.aspx>

against the subsurface threat in the Arctic as well.³¹ Only through effective security can Canada claim it has credible sovereignty established in the Arctic.

Harper stated, “The single most important duty of the federal government is to protect and defend our national sovereignty.”³² In that statement, Harper was conveying his approach that the choice for Canada to maintain its claims on the Arctic was to, “use it or lose it.”³³ Canada must be prepared to conduct subsurface operations in the Arctic to detect, deter, and combat forces that challenge its sovereignty and security. Harper defended his aspirations to CAF employment in the Arctic with, “You don’t defend national sovereignty with flags, cheap election rhetoric, and advertising campaigns. You need forces on the ground, ships in the sea, and proper surveillance.”³⁴

Canada has a history of partnerships in Arctic operations. Starting in the 1950s and 1960s, Canada not only embarked RCN officers in US SSNs, but US transits in Canadian territorial waters were known to Canada and was the beginning of a partnership that would see many more US SSN transits in Canadian waters and throughout the Arctic.³⁵ Arctic submarine activity was conducted for a variety of reasons including; environmental surveys of ice, transits between the basins of the Arctic Oceans and anti-submarine surveillance and patrols.³⁶

It is reasonable to conclude that Harper’s vision of armed icebreakers, now developed into the *Harry De Wolf*-Class (HDW) of Arctic Offshore Patrol Vessels, is an evolution of the

³¹ R.E. Woodards, “Back to The Future: NORAD, Sovereignty and Anti Submarine Warfare in The Arctic” (Joint Command and Staff Course Solo Flight Paper, Canadian Forces College, 2014), 2

³² P. Whitney Lackenbauer and Ryan Dean, *Canada’s Northern Strategy under Prime Minister Stephen Harper: Key Speeches and Documents on Sovereignty, Security, and Governance, 2006-15. Documents on Canadian Arctic Sovereignty and Security* (Number 6, 2016), 1.

³³ *Ibid.*, xxxii

³⁴ *Ibid.*, 1.

³⁵ Adam Lajeunesse, *Lock, Stock, and Icebergs: A History of Canada’s Arctic Maritime Sovereignty* (Vancouver: UBC Press 2016), 104-112 and 228

³⁶ Office of the Judge Advocate General, *Naval Operations in Arctic Waters: The Operational Legal Challenges of Naval Operations In Canada’s Arctic Waters* (DND: 2008), 8.

1961 Department of National Defence plan to develop a fleet of Arctic-capable supply ships that would be able to replenish submarines in the Arctic while maintaining a visible sovereignty patrol and deterrence against foreign or illegal activity. The conservative vision of, “putting more boots on the Arctic tundra, more ships in the icy water and a better eye-in-the-sky,”³⁷ is potentially a piece of a larger, cooperative, allied approach to Arctic security.

Employment of the HDW ships in conjunction with continued aircraft patrols, and the implementation of new technologies for underwater surveillance could provide the necessary detection ability. Huebert states that, “Canadian Arctic Sovereignty is not only about defining the borders and international legal status of the Canadian North ... Rather, defending Canadian Arctic sovereignty is really about the control of the region.”³⁸ This definition concludes that sovereignty is not simply drawing the boundaries but is actually the application of control and influence in that region, the ability to enact and enforce laws, and defend against threats. Deployment of HDW ships in the Arctic for the summer months and use of Unmanned Underwater Vehicles could potentially allow for a comprehensive ability to monitor the Canadian waterways, but they do not have a combat capability nor are all of these elements available year-round. The only platform that possesses year-round, under-ice, Arctic capability, with detection and combat abilities is a nuclear submarine. As VAdm Lloyd, Commander RCN

³⁷ P. Whitney Lackenbauer and Ryan Dean, *Canada's Northern Strategy under Prime Minister Stephen Harper: Key Speeches and Documents on Sovereignty, Security, and Governance, 2006-15. Documents on Canadian Arctic Sovereignty and Security* (Number 6, 2016), xxxviii

³⁸ “Arctic Circle Panel,” “The Myth of Arctic Sovereignty: Do We Really Need to Defend the North?” Last modified 22 January 2014. <https://beta.theglobeandmail.com/news/national/the-north/the-myth-of-arctic-sovereignty-do-we-really-need-to-defend-the-north/article16444454/?ref=https://www.theglobeandmail.com&service=mobile>.

stated in 2017 when referring to the release of SSE, “The best asset to track a submarine is, without doubt, another submarine.”³⁹

ARCTIC SUBMARINES

The Arctic Ocean has become the private sea of the submariner, who is free to move in any direction and at any speed under the ice covering the sea.

– Alfred S McLaren, *The Evolution of the Arctic Submarine*

The Royal Canadian Navy (RCN) employs four ex-Royal Navy (RN) *Upholder*-class conventional submarines (SSKs). Commissioned as the *Victoria*-class, these submarines have experienced several difficulties in the program from fires to collisions, leaving typically only two available for employment at any one time. The *Victoria*-class are identified in SSE to undergo a life-extension project to ensure their serviceability until the 2030s.⁴⁰

Moving forward, it is in Canada’s best interests to emphasize employment of the *Victoria*-class submarines in more northern regions to develop familiarization with the Arctic environment. Unable to transit any significant range under the ice, even with modification of Air-independent propulsion (AIP) which can increase submerged operations up to eighteen days, SSKs are not suited for Arctic operations year-round. Although the projected receding ice would facilitate expansion of areas for SSK patrols, AIP does still not permit prolonged under-ice operations.⁴¹ Canada should seek to maximize any northern operations available to begin

³⁹ Gary Garnett *Victoria Class Submarines*, *Canadian Naval Review*, last updated 26 September 2017. <http://www.navalreview.ca/2017/09/victoria-class-submarines/>

⁴⁰ Government of Canada *Strong, Secure, Engaged: Canada’s Defence Policy* (Ottawa: DND Canada, 2017), 65.

⁴¹ Danny Lam, “Hybrid submarines, an efficient alternative” last accessed 7 May 2018 <http://defence.frontline.online/blogs/3896-Dr.-Danny-Lam/7909-Hybrid-submarines%2C-an-efficient->

building the skillsets and to trial equipment to enhance future submarine procurement and under-ice operations. Potentially, Canada could return to nuclear-submarine procurement plan, as was attempted in the 1960's for US SSNs and again in the 1980's for either British or French SSNs.⁴² "Nuclear propelled submarines are far superior in comparison to diesel-electric submarines as a platform for Canadian exercise of sovereignty over the Arctic region. In general, nuclear propulsion is preferable; hence the presence of many nuclear propelled ships in the Arctic."⁴³ As SSNs are capable of greater periods submerged than SSKs, SSNs have the necessary endurance to remain under ice without the daily requirement to replenish batteries near the surface required in the SSKs.⁴⁴ It is the SSKs lack of submerged endurance that prevents it from being a credible Arctic under-ice platform, irrespective of its lack of ice strengthening to surface through the ice like the SSN counterparts.⁴⁵ Although, recent fiscal restraint and emphasis on interoperability with allies would likely continue to be prioritized over the desire to develop a Canadian SSN capability. The operational endurance and Arctic capability of nuclear submarines would undoubtedly allow Canada the ability to monitor the Canadian Arctic maritime boundaries and internal waterways effectively, but this may be achieved through allied cooperation of Canadian surface vessels, like the HDW class when operational, and UUVs while allied SSNs project power in the region, to promote deterrence against foreign submarine incursions and illegal activity.

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⁴² Rob Huebert "Submarines, oil tankers, and icebreakers" *Trying to understand Canadian Arctic sovereignty and security*. (International Journal, 2011), 820-821.

⁴³ Katia Moskvitch, "Russia to Build Biggest Nuclear Powered Icebreaker," BBC News, 12 September 2012, [source on-line]; available from <http://www.bbc.com/news/technology-19576266>; Internet; accessed 15 April 2014.

⁴⁴ Adam Lajeunesse, *Lock, Stock, and Icebergs: A History of Canada's Arctic Maritime Sovereignty* (Vancouver: UBC Press 2016), 104-106

⁴⁵ Danny Lam, "Hybrid submarines, an efficient alternative" last accessed 7 May 2018 http://defence.frontline.online/blogs/3896-Dr.-Danny-Lam/7909-Hybrid-submarines%2C-an-efficient-alternative?utm_source=Extras&utm_campaign=dfcdaef847-FrontLine+Defence+Newsletter+August+8&utm_medium=email&utm_term=0_efa98dc22e-dfcdaef847-10203993

When the HDW Arctic Patrol Vessels finally enter service, they are not expected to possess any type of anti-submarine detection or prosecution capability. This capability gap could be mitigated with undersea detection equipment or UUVs, although to be capable of continually tracking and monitoring, a submarine is the ideal mechanism. In the near term, it will be important to maintain or enhance the present *Victoria*-class arctic capability until other underwater anti-submarine systems are established, or bilateral agreements are in place in support of allied submarine patrols. As Capt(N) Webster, a former Canadian submariner, suggests, “Although the *Victoria*-class submarine does not have an under-ice capability, the mere presence of a Canadian submarine operating in the ice-free areas... can have a significant impact.”⁴⁶ Until other measures are in place, SSKs operating in the Arctic will be the mitigation measure for Arctic security.

OTHER PRIORITIES

Rob Huebert asserted that there is no need to defend the Arctic militarily, and that it is a common misconception that forces are required in the North. He argues that the only true disputes in place are that of Hans Island and the Northwest Passage, and highlights that neither of which are under siege, instead both matters are being dealt with in international court.⁴⁷ In 1963, following the Canadian government’s plan to acquire SSNs, the Submarine Acquisition

⁴⁶ Phil Webster “Arctic Sovereignty, Submarine Operations and Water Space Management.” *Canadian Naval Review* Vol 3, no. 3 (Fall 2007): 14-16. <http://www.navalreview.ca/wp-content/uploads/public/vol3num3/vol3num3art4.pdf>

⁴⁷ “Arctic Circle Panel,” “The Myth of Arctic Sovereignty: Do We Really Need to Defend the North?” Last modified 22 January 2014. <https://beta.theglobeandmail.com/news/national/the-north/the-myth-of-arctic-sovereignty-do-we-really-need-to-defend-the-north/article16444454/?ref=https://www.theglobeandmail.com&service=mobile>

Committee had determined that, at that time, the need for SSNs was a considerable political need and not a predominantly defence requirement.⁴⁸

Adam Lajeunesse highlights that concerns over Chinese shipping through the Northwest Passage is unreasonable. His position is that it is far more likely that China would respect Canadian sovereignty claims in the Northwest Passage to solidify their stance in the international community towards the South China Sea.⁴⁹

Criticizing former Prime Minister Harper's sovereignty rhetoric, Steven Chase refers to, "the talk about sovereignty [that] incorrectly leaves the impression that Canadian territory is at risk. Realistic threats to Canada's ownership in the North are small."⁵⁰ Chase continues his point with the emphasis that the predominant theme in the Arctic is cooperation, protection of the ecosystem, and upholding international law.

If the Arctic is threatened by foreign submarine incursions, there are more cost-effective means of trying to deter such incursions. In the early 1990's efforts were underway to establish a memorandum of understanding between Canada and the US to establish and utilize an underwater/subsurface acoustic detection system in the narrow portions of the Northwest Passage.⁵¹ Such a system would allow for the detection of submarines and other underwater

⁴⁸ Adam Lajeunesse, *Lock, Stock, and Icebergs: A History of Canada's Arctic Maritime Sovereignty* (Vancouver: UBC Press 2016), 121

⁴⁹Doug Tsuruoka, "China is wild card in US-Canada split over Northwest Passage" last updated 10 January 2017 <http://www.atimes.com/article/china-wild-card-us-canada-split-northwest-passage/>

⁵⁰ "Arctic Circle Panel," "The Myth of Arctic Sovereignty: Do We Really Need to Defend the North?" Last modified 22 January 2014. <https://beta.theglobeandmail.com/news/national/the-north/the-myth-of-arctic-sovereignty-do-we-really-need-to-defend-the-north/article16444454/?ref=https://www.theglobeandmail.com&service=mobile>.

⁵¹ Rob Huebert "Submarines, oil tankers, and icebreakers" *Trying to understand Canadian Arctic sovereignty and security*. (International Journal, 2011), 820.

activity in the vicinity of the sensors.⁵² However, such a system is not portable and could be avoided through submarine manoeuvre.

With developments in UUVs well underway, there is significant potential for these platforms to enhance Canada's underwater detection and tracking, and perhaps weapon-delivery in the future.⁵³ Canada could enhance an Arctic anti-submarine mitigation strategy through the procurement of UUV systems and employ them in conjunction with the *Victoria*-class. Meanwhile, it will be important for the government of Canada and DND to determine how to utilize new technologies and agreements with allies to strengthen Canada's Arctic surveillance and control.⁵⁴

Perhaps it would be advantageous for Canada to explore other types of memoranda of understanding with allied nations who possess Arctic-capable SSNs. Agreements on providing information regarding operations and locations, in exchange for unrestricted access to operate submerged in Canadian internal and territorial waters could prove fruitful. If there are already indications that the US Navy and other allied nations have already been operating there, that would suggest that Canada does not have much leverage to develop such a memorandum of understanding, if those events are already taking place, and there is no way Canada can prove or deter such operations.

⁵² *Ibid.*

⁵³ Office of Naval Research, Naval Ice Center, Oceanographer of the Navy, and the Arctic Research Commission, "Naval Operations in an Ice-free Arctic Symposium: Final Arctic Report" (Whitney, Bradley & Brown, Inc, 2001), 32

⁵⁴ Government of Canada *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 113.

CONCLUSION

As global climate change results in significantly less ice coverage in the Arctic throughout the year, increased maritime traffic is highly likely. Coupled with this increased activity, there is significant potential that the Arctic will be exploited for its natural resources. Consequently, this changing situation will likely result in greater Chinese and Russian interest in the region. Already the Russian and Chinese government has shown considerable investment in operating in the Arctic region.⁵⁵ The present lack of Canadian undersea sensors and SSN capability mean that presently very little is known of submarine operations in the North.⁵⁶

The promulgation of the defence policy, *Strong Secure Engaged*, refers to increase in defence funding and sets the priorities for the CAF and DND for the next decade and beyond. Within the policy, it refers to efforts to operate the SSKs until 2030. With that assumption known, it is important to begin identification of a suitable replacement platform now. Canada needs to reflect upon the prioritization of the Arctic in terms of national sovereignty and defence. The acquisition of an anti-submarine capability of operating in the Arctic year-round would permit Canada to maintain the necessary Arctic domain awareness and deter foreign submarines from operating uncontested within Canadian waters.

The proliferation of nuclear submarine technology amongst allied and adversarial states means that Canada needs to either procure Arctic-capable submarines or develop a memorandum of understanding with an ally to perform patrols on Canada's behalf; this may potentially call

⁵⁵ Keith Johnson and Standish, Reid "Putin and Xi Are Dreaming of a Polar Silk Road," last updated 8 March 2018, <http://foreignpolicy.com/2018/03/08/putin-and-xi-are-dreaming-of-a-polar-silk-road-arctic-northern-sea-route-yamal/>

⁵⁶ Rob Huebert "Submarines, oil tankers, and icebreakers" *Trying to understand Canadian Arctic sovereignty and security* (International Journal, 2011), 810.

into question Canada's claims in the international court regarding Arctic maritime boundaries and the ability to enforce sovereignty.⁵⁷

⁵⁷ *Ibid.*

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