

Canada's Defence and Security in the Maritime Arctic

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Abstract

The purpose of this paper is to examine maritime Arctic states' defence and security challenges in the maritime Arctic, and more specifically Canada's defence and security challenges, due to climate change. The three major sections of the paper will consist of: providing the background information and context of challenges that maritime Arctic states will face; situating the maritime Arctic conventional and non-conventional threats to Canada's context and identifying Canada's current defence and security capabilities; and presenting recommendations that could improve how Canada operates, from a defence and security perspective, in the maritime Arctic.

Introduction

The geo-political interest in the Arctic has steadily emerged as a major topic around the world. This is predominantly due to climate change which is affecting the environment in the Arctic. The large quantities of melting ice are opening up sea lanes for ships to travel through, making the Arctic accessible unlike ever before. Increased global interest in this region has put pressure on Arctic states, which have land and maritime boundaries in the Arctic, to increase their attention and make the Arctic a priority. The Arctic states have independently identified the Arctic as a strategic interest crucial to their state interest and are organizing ways in which they can operate in this new environment. The topic of the Arctic is large in scope and the impacts from the changes occurring can be analysed from a defence and security perspective as well as from other viewpoints including political, social, cultural, and economical. The purpose of this paper is to examine maritime Arctic states' defence and security challenges in the maritime Arctic, and more specifically Canada's defence and security challenges, due to climate change. The emphasis of this research paper will be on the maritime Arctic which is "loosely defined to include the coastal seas and ocean bound by the Arctic Circle, excluding small areas of unclaimed and unclaimable regions of the Arctic that are accessible to all nations."¹ The maritime Arctic states that will be the focus of this study include: Canada, Denmark, Norway, Russia, and the United States of America (United States). The paper will identify and describe the challenges Arctic states face collectively and how they plan to cope with them. The paper will then, through political documents, academic articles, and newspaper articles, look at Canada's challenges in the maritime Arctic and will identify and analyse the conventional and

¹ Brosnan, Ian, Thomas Leschine, and Edward Miles, "Cooperation or Conflict in a Changing Arctic?" *Ocean Development and International Law*. 42:173-210, 2011. Pg. 175.

non-conventional threats to Canadian defence and security. It will also discuss Canada's current defence and security capabilities and identify pragmatic future Canadian defence and security capabilities that will improve Canada's ability to evolve and adapt to the changes occurring in the maritime Arctic.

The three major sections of the paper will consist of: providing the background information and context of challenges that maritime Arctic states will face; situating the maritime Arctic conventional and non-conventional threats to Canada's context and identifying Canada's current defence and security capabilities; and presenting recommendations that could improve how Canada operates, from a defence and security perspective, in the maritime Arctic.

In the background information section, the paper will, firstly, provide context of the current environmental changes occurring in the Arctic and provide approximate forecasts of possible changes to take place in the maritime Arctic. Secondly, the background information section will list the major players, Arctic states and international organizations, that are active in the Arctic and collectively describe their defence and security oriented policies. The background information section will lastly survey the current and future operating environment and provide succinct awareness as to the similar challenges Arctic states are encountering.

The second major section, situating the maritime Arctic challenges to Canada's context, will identify and discuss Canada's conventional and non-conventional threats to defence and security in the maritime Arctic. Although conventional threats to defence and security are important and will be identified and discussed, they will carry less focus in this paper because

they are less likely to occur in the maritime Arctic, and Canada is adequately prepared to meet the conventional challenges with its current capabilities. Non-conventional threats will be the focus as they pose the greatest threats to defence and security and require the most attention with regards to developing currently non-existent or limited Canadian defence and security capabilities. The second section will also identify Canada's current defence and security capabilities.

The third major section of the paper, the recommendations section, will provide pragmatic recommendations to improve Canadian defence and security capabilities so Canada is prepared to respond to non-conventional threats in the maritime Arctic.

Section 1: Background Information

The Arctic has become a prominent issue, is frequently publicly discussed in Canada, is regularly reported on by media, and is gaining significant interest and importance worldwide. The Arctic has grown into an issue of popularity as a result of the drastic climatic changes occurring in the Arctic environment, the possibility for businesses to access untouched natural resources, and because the notoriety that it receives for future predicted changes and perceptions of potential conflict in the region.

Defining the Arctic

The Arctic, which covers approximately 1/6 of the Earth's landmass, can be defined in various ways.² The most common definitions are:

- a) the areas north of the 10 degree C isotherm for July
- b) the Arctic Circle (at 66°33')
- c) a still wider region which includes more of Northern Scandinavia and the oceans bordering the Arctic Ocean³

All three variations are used depending on the context of the Arctic discussion.



Figure 1: Map of the Arctic Boundaries in the Arctic Region according to the Arctic Council.⁴ Note that the Arctic Council has many definitions of the Arctic as there are multiple Working Groups which define the Arctic differently based on the issue of focus.

² Arctic Council. Arctic Council Brochure 2012. <http://www.arctic-council.org/index.php/en/document-archive/category/100-general-arctic-council-information#> .

³ Hoel, Alf Hakon. "The High North Legal-Political Regime." in Sven G. Holtmark and Brooke A. Smith-Windsor's book *Security Prospects in the High North: Geostrategic Thaw or Freeze?*. NATO Defense College, 2009. Pg. 81-101. Pg. 82.

⁴ Arctic Council Image - by Winfried K. Dallmann. <http://www.arctic-council.org/images/maps/boundaries.pdf> .

The last definition, c, encompasses a geographic area of approximately 30 million km² which is the equivalent of almost three times the size of mainland Europe.⁵ Definition c of the Arctic will be the definition used as it includes the Arctic Ocean, a focal point of this paper.

The two bodies of water that receive the most attention in the Arctic and that will come under focus in this paper due to their growing accessibility are the Northwest Passage and the Northern Sea Route. The Northwest Passage (NWP) is commonly defined as the “sea stretch from Lancaster Sound to the Bering Strait, although many authors limit its scope to the Canadian archipelago.”⁶ Moreover, the NWP “rests almost entirely in Canadian-claimed internal waters if it is defined as extending from Baffin Bay to the Beaufort Sea...”⁷ The Northern Sea Route which is also named the Northeast Passage “follows the Siberian Arctic coast and crosses Russian Arctic straits between the mainland and Russian Arctic archipelagos: Novaya Zemlya, Severnaya Zemlya, the New Siberian Islands, and Wrangel Island.”⁸ Both seaways will become significant in importance in the coming decades because they are seen as potential future highways through the Arctic for various forms of shipping.

The Impact of Climate Change on the Arctic

Climate change has had a drastic impact on the Arctic. Scientists collecting ice-melt data for the Arctic have found numerous statistics and figures demonstrating that there has been

⁵ Hoel, Pg. 83.

⁶ Lasserre, Frédéric. “High North Shipping: myths and realities.” .” in Sven G. Holtmark and Brooke A. Smith-Windsor’s book *Security Prospects in the High North: Geostrategic Thaw or Freeze?*. NATO Defense College, 2009.PP. 179-199. Pg. 182. A diagram of the Northwest Passage can be found on Pg. 183.

⁷ Lasserre, Frédéric. “Arctic shipping routes: from the Panama myth to reality.” *International Journal*. Autumn 2011. PP. 793-808. Pg. 795.

⁸ Lasserre, Pg. 795. (2011).

significant and accelerated ice-melt especially from 1979-2007 due to climate change.⁹ In the summer of 2007, scientists “saw a record low in minimum sea ice extent and the data show a trend towards an accelerated decline of the ice.”¹⁰ Moreover, another observation of Arctic change in 2007 found that “...more than one million square miles of ice melted, leaving the region with only half the ice that existed in 1950.”¹¹ In 2010, the sea-ice minimum was the “third lowest in 30 years, and the past four summer minimums are the lowest in satellite history.”¹² Other scientific sources have been reviewing climate change and attempting to forecast the changes in temperatures. Scientific research has developed calculations that demonstrate that the Earth’s surface has experienced rising temperatures of “2°C in recent decades and may well rise by two to five more degrees during the course of this century.”¹³ These examples of scientific facts affirm that sea-ice melting is occurring in the Arctic. What is difficult for scientists to currently predict is the amount of sea-ice melting from year to year. Scientists also cannot come to a consensus as to when there will be ice-free summers. The difficulty of predicting ice-free summers is further complicated by Arctic activity which will perpetuate the ice-albedo feedback loop. Normally, “[w]hite sea ice reflects sunlight and keeps the polar regions cool,” however, with increased human activity in the Arctic and ice progressively melting “retreating sea ice exposes darker and less reflective seawater that absorbs heat, causing even more ice to melt.”¹⁴ This continuous ice-albedo feedback loop cycle could

⁹ Lasserre, Pg. 180. (2009). Data chart depicting the Evolution of Arctic Sea Ice Surface in September, 1979-2007 can be found on Pg. 180.

¹⁰ Lasserre, Pg. 180. (2009). Satellite Pictures of Ice Concentration in Early September can be found on Pg. 181.

¹¹ Ebinger, Pg. 1216. Ebinger, Charles K., and Evie Zambetakis. “The Geopolitics of Arctic Melt” *International Affairs* 85: 6, 2009.

¹² Stokke, Olav Schram. “Environmental Security in the Arctic: the case for multilevel governance.” *International Journal*, Autumn 2011. PP. 835-848. Pg. 837-838.

¹³ Young, Oran. The Future of the Arctic: Cauldron of Conflict or Zone of Peace” *International Affairs* 87:1 2011 (185-193). Pg. 187.

¹⁴ Standing Senate Committee on Fisheries and Oceans – Fourth Report, “The Coast Guard in Canada’s Arctic: Interim Report”. June 2008. Pg. 5.

considerably change the maritime Arctic ecosystem and surrounding areas. As a result of increased activity in the North, rising temperatures could create coastal erosion and heighten sea levels, while warm temperatures could also change the make-up of the bio-ecosystems.¹⁵ Due to the inability to predict the exact date of ice-free summers in the Arctic, scientists have forecasted different dates. Some scientists predict that, based on the pace of ice melt, there is a “prospect of ice-free summers as early as 2015 in some models...”¹⁶ while others provide conservative estimates of ice-free summers not until 2050.¹⁷ Although future year to year predictions of ice melt and a firm date of potentially ice-free summers remain uncertain, what is clear is the “trend definitely points towards an accelerating decline.”¹⁸ With this accelerating decline of sea ice will come additional accessibility to the Arctic, and thus more activity in the Arctic.

The impact of ice melt is far reaching. Not only will there be increased activity through the Arctic, but increased activity *in* the Arctic as well. The reduction of ice will escalate industry’s accessibility of currently untouched natural resources in the Arctic Ocean. The 2008 report released by the US Geological Survey estimates that the Arctic may “be home to 13 per cent of the world’s undiscovered oil and up to 30 per cent of its undiscovered natural gas.”¹⁹ As Canada has a stake in this region, it is imperative that the government has the ability to allow or prevent access in this region.

¹⁵ Standing Senate Committee on Fisheries and Oceans – Fourth Report, Pg. 7.

¹⁶ Lasserre, Pg. 794. (2011).

Kwok, R. “Exchange of sea ice between the Arctic Ocean and the Canadian Arctic Archipelago”. *Geophysical Research Letters*, 33, 2006. Nghiem, S. V. “depletion of perennial sea ice in the East Arctic Ocean”. *Geophysical Research Letters*, 33, 2006.

¹⁷ Stewart E.J., S.E.L. Howell, D. Draper, J. Yackel, and A. Tivy. “Sea Ice in Canada’s Arctic: Implications for Cruise Tourism.” *Arctic*. Vol. 60 No.4 Arctic Institute of North America. December 2007. Pp. 370-380. Pg. 370.

¹⁸ Lasserre, Pg. 794. (2011).

¹⁹ Young, Pg. 187.

The Arctic Sovereignty Debate and the Arctic Seen as a Lawless Region

As previously mentioned, the issue of the Arctic has become largely notorious in the media due to the perceptions that the Arctic, which is now becoming more and more accessible, will become a new battleground of conflict for states as there is a rush to cash in on the untouched natural resources in the area. Elizabeth Riddell-Dixon, an academic professor who specializes in the Arctic, has captured this negative sentiment accurately when she states that “media headlines, such as ‘Cold Rush: The Coming Fight for the Melting North,’ ‘The Arctic’s New Gold Rush,’ ‘Arctic Politics Means a Tussle over Who Owns the North,’ and ‘Arctic Claims Will Be ‘Messy’ imply a degree of lawlessness” and that it also “conjure[s] images of a wild frontier in which countries are engaged in a zero-sum struggle to grab as much of the Arctic seabed as possible.”²⁰ Moreover, evidence of this negative perception of conflict in the Arctic has been documented in an Arctic journal article which performed a data collection of search results of articles with the use of Google. It found that in the late 2000s there was a “spike in articles containing the words ‘Arctic’ and ‘conflict’ that is matched only by a similar spike that had followed the November 1939 invasion of Finland by Russia.”²¹ Although there may be a perpetuated idea by narrators and observers that Arctic ice-melt will create a rush and grab mentality of Arctic territory and resources, this is in fact not the case. International laws, through state acceptance of rules and procedures, have been put in place so as to define a state’s territorial and maritime borders as well as to mitigate disputes in a co-operative manner. The next section will briefly identify the misnomers regarding Arctic territory and maritime boundaries so as to better understand what are and what are not the challenges of Arctic states.

²⁰ Riddell-Dixon, Elizabeth. “Canada and Arctic Politics: The Continental Shelf Extension.” *Ocean Development & International Law*, 39:343–359, 2008. Pg. 345.

²¹ Brosnan, Pg. 173. For a visual diagram please check pg. 174 of this article.

To begin, despite false perceptions, except for one outlier, all states recognize, respect, and agree to the land mass of each Arctic state's territory and land boundaries. The Ilulissat Declaration, in 2008, was critical to this recognition process as it gave the Arctic states an opportunity to come to an agreement and publicly declare that diplomacy would be the "only means of conflict resolution" among the five maritime Arctic states.²² At the Ilulissat Declaration the five maritime Arctic states also "acknowledged needs in the fields of environment and ecosystem protection, navigation, scientific research, and monitoring, search and rescue and disaster response, and 'safety of life'".²³ The Ilulissat Declaration by the five maritime Arctic states can be seen as a strong first step of promoting cooperation in the Arctic, however, there are still issues remaining.

Outstanding Disputes among Maritime Arctic States

As previously identified, there exists one single territorial disagreement in addition to multiple maritime boundary disagreements among the five maritime Arctic states. The only territorial disagreement in the Arctic is Hans Island and it is between Canada and Denmark.²⁴ Hans Island is a 1.3 km uninhabited island located between Greenland and Canada's Ellesmere Island in the Nares Strait and both states disagree over the claim that the other has ownership of

²² Ruel, Geveviève King. "The (Arctic) show must go on." *International Journal*. Autumn 2011. PP. 825-833. Pg. 830.

²³ Bailes, Alyson J.K. "Options for Closer Cooperation in the High North: What is needed?" in Sven G. Holtsmark and Brooke A. Smith-Windsor's book *Security Prospects in the High North: Geostrategic Thaw or Freeze?*. NATO Defense College, 2009. PP. 28-57. Pg. 32.

²⁴ Huebert, Rob. "Submarines, oil tankers, and icebreakers." *International Journal*. Toronto: August 2011. Vol. 66, Iss. 4. PP. 809-825". Pg. 812.

the land.²⁵ Concerning this issue, both states have stated that this disagreement will be resolved diplomatically at a bilateral level and through a peaceful process.

The other remaining disputes among maritime Arctic states are with maritime boundaries.²⁶ Specifically, the United States and Russia disagree on the boundary that runs from the NW Pacific through the Arctic Ocean. The United States and Canada dispute maritime boundaries in the Beaufort Sea close to the borders of Alaska and the Yukon. Canada and Denmark disagree with each other over the maritime boundary of the Lincoln Sea. Canada and the United States also dispute the definition of the NWP. Despite their disagreements, all the maritime Arctic states have stated that they will work with one another, through diplomacy, cooperation and the use of international law to reach positive solutions.²⁷ The last major and complex issue that needs to be resolved is defining each maritime Arctic state's extension claims of its continental shelf and the associated 200 nautical miles that accompany these claims. The next section will explain this process as well as the use of international law and diplomatic cooperation among maritime Arctic states that accompany this process.

The Role of the United Nations Convention on the Laws of the Sea (UNCLOS)

The United Nations Convention on Laws of the Sea (UNCLOS) is the principal governance treaty in international law when it comes to oceanic jurisdiction. UNCLOS attempts to find a “delicate legal and political balance” between two traditional and opposing ideas of *mare liberum* – that the seas are the sovereignty of no one and free for all to use – and *mare*

²⁵ Carnaghan, M, & Goody, A. Library of Parliament, Political and Social Affairs Division. (2006). *Canadian Arctic sovereignty* (PRB 05-61E). Ottawa, Ontario: Government Printing Office. PP. 1-11. Pg. 5.

²⁶ For more information of each maritime boundaries disagreement see Brosnan, Pg. 187.

²⁷ Stokke, Pg. 842.

clausum – that seas can be sovereign and under state-control – so as to achieve an acceptable maritime order for states.²⁸

Laws governing the oceans were established in the twentieth century. Before this, states were:

...subject to the freedom-of-the-seas doctrine - a principle put forth in the seventeenth century essentially limiting national rights and jurisdiction over the oceans to a narrow belt of sea surrounding a nation's coastline. The remainder of the seas was proclaimed to be free to all and belonging to none²⁹

With growing state importance regarding its maritime claims due to ocean resources, an international agreement, named the *1952 Geneva Conventions on Laws of the Sea*, was struck in 1952. This convention, which preceded UNCLOS, was not detailed enough in its guidelines, and so in 1982 the *United Nations Convention on Laws of the Sea* was agreed upon to correct the ambiguities of the previous document and provide concrete direction of ocean governance to states. A major factor pertaining to the creation of UNCLOS was that “maritime powers and the coastal states risked equally suffering from an unregulated, disputed, and unstable maritime order.”³⁰ UNCLOS is a crucial agreement among states because it defines national waters, state ownership of continental shelves, marine resource ownership, the rules of shipping, and travelling through different types of waters. Moreover, UNCLOS attempts to find a common ground between the economic and national interests with traditional defence and security interests.³¹ Four of the five maritime Arctic states have ratified UNCLOS. The only state that has not ratified UNCLOS is the United States, since it has not been agreed to in the United States Senate. Nonetheless, although not a member of the treaty, the United States “government

²⁸ Mcfadden, Dean. “The Navy and Canada’s National Interests in this Maritime Century.” *Canadian Military Journal*, Vol. 10, No. 4, Autumn 2010. PP. 53-58. Pg. 53.

²⁹ UNCLOS Historical Perspective - http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm 13 march 2001.

³⁰ Mcfadden, Pg. 53.

³¹ Ibid.

recognizes that adherence to the Convention’s norm is in its national interest” and thus supports and adheres to the treaty.³² The five maritime Arctic states have shared interests, stability, and support for UNCLOS and this creates an environment in which peaceful negotiation, leading to mutually beneficial agreements, can occur. UNCLOS has also been designed to identify the process required to define contested maritime boundaries.

UNCLOS is also a crucial agreement because it stipulates the process required for maritime Arctic states to submit additional claims for the extension of their continental shelves in the Arctic beyond the 200 nautical miles of their exclusive economic zones. Maritime states are looking to extend their continental shelf as much as possible because “on its continental shelf, the coastal state has sovereign rights to explore and exploit ‘the mineral and other non-living resources of the sea-bed and subsoil together with living organisms belonging to sedentary species.’”³³ Each maritime state looking to extend its continental shelf is responsible for “conduct[ing] scientific research to determine if its continental shelf extends beyond 200 nautical miles and, if so, the limits of its outer edge,” while meeting certain rules and regulations made in UNCLOS, and submitting the evidence to the Commission on the Limits of the Continental Shelf.³⁴ This commission reviews all the submissions and the “material submitted and makes recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf...on the basis of these recommendations shall be final and binding,” as defined in UNCLOS.³⁵

³² Riddell-Dixon, Pg. 346.

³³ Riddell-Dixon, Pg. 344.

³⁴ Riddell-Dixon, Elizabeth. Pg. 345. For more information on ‘rules and recommendations’ please see Riddell-Dixon 345-346 and for more information on details about the Commission check pages 346-347.

³⁵ Riddell-Dixon, Pg. 346.

Canada has benefited greatly from UNCLOS. It has given Canada sovereignty over 3.5 percent of the planet's surface.³⁶ Canada plans to submit an additional claim to the Commission on the Limits of the Continental Shelf as Canada "estimates that its continental shelf beyond 200 nautical miles in the Atlantic and Arctic Ocean covers approximately 1.75 million square kilometers (equal to the three prairie provinces combined)" of which "three quarters of a million square kilometers are in the Arctic."³⁷ Overlapping claims among maritime Arctic states will remain outside the purview of the Commission on the Limits of the Continental Shelf. Therefore, co-operation, international law, positive diplomacy, and scientific evidence will be required by all maritime Arctic states to come to an agreement about their maritime borders. The leaders of the maritime Arctic states have on many occasions insisted that Arctic differences can be resolved diplomatically. Russia's current President, and Prime Minister at the time, Vladimir Putin stated that he had "no doubts at all that the existing issues in the Arctic, including those related to the continental shelf, can be resolved in a spirit of partnership through negotiations and on the basis of existing international law."³⁸ The Arctic Council, as will be discussed next, can play a crucial role in cultivating diplomatic relations among Arctic states.

Arctic Council

The Arctic Council is the international organization that "serves as a high-level, intergovernmental forum for political and scientific discussions on issues common to the governments of the Arctic region and its inhabitants."³⁹ It was established in Ottawa, Canada in 1996 as part of the Ottawa Declaration so as to further encourage co-operation and co-ordination

³⁶ Mcfadden, Pg. 55.

³⁷ Riddell-Dixon, Pg. 347.

³⁸ Stokke, Pg. 841.

³⁹ Arctic Council Brochure 2012.

of Arctic issues among Arctic states. The member states of the Arctic Council are Canada, Denmark, Finland, Iceland, Norway, Russian Federation, Sweden, and the United States.⁴⁰ In addition to the Member States, there are Permanent Participants in the Arctic Council, six organizations that represent Arctic Indigenous People, and Observer States.⁴¹ Indigenous groups have been included as they make up a predominant portion of the population in the Arctic, they are knowledgeable and experienced in Arctic issues, and because any types of policies, including sustainable development policies, will have a resounding impact on their way of life. The mandate of the Arctic Council revolves around the two main issues of environmental protection and sustainable development.⁴² The Arctic Council oversees the work of six working groups.⁴³ It is a forum for discussion and is used to discourage any forms of destructive unilateral action from any given participant.

It is important to note that interest in the Arctic does not end with the Arctic states. South Korea, China, Japan, and India are notable states that have sponsored Arctic scientific expeditions.⁴⁴ Some states have gone so far as to “claim within various international frameworks that the Arctic should remain open to all nations under the international law concept of ‘common heritage of mankind’ similar to South Pole.”⁴⁵ Although these claims have been unsuccessful, it does put tremendous pressure on the Arctic states to concentrate on the Arctic and to find various ways of protecting their interests there. Many countries, including some of the ones previously named, have been submitting their names to join the Arctic Council as observer states. The

⁴⁰ Arctic Council Brochure 2012.

⁴¹ Ibid.

⁴² Ibid.

⁴³ United States of America Department of State <http://www.state.gov/e/oes/ocns/opa/arc/ac/> - accessed 17.02.2014.

⁴⁴ Ebinger, Pg. 1222-1223.

⁴⁵ Ebinger, Pg. 1223.

Arctic states remain hesitant to add these non-Arctic states to the council as increased membership can slow down the Arctic Council's work as well as can limit Arctic states' discussion on achieving national interests.

The next section will identify and discuss Canada's challenges in the maritime Arctic. The defence and security challenges will be categorized in two ways: conventional threats and non-conventional threats.

Section 2: Conventional and Non-conventional threats to Canadian Defence and Security

Canada has not always seen the Arctic as an important geo-political area as it does today. In the past, the Arctic was viewed commonly as a frozen buffer zone for Canada as a means of separation and protection from Russia. This perspective has changed as climate change has impacted the Arctic. As the Arctic is beginning to thaw, it is increasingly becoming viewed as an active environment where states will operate on a regular basis. Climate change is transforming Canada's perspective and considerations of the Arctic environment. Canada will now have to evaluate from a defence and security perspective the threats that will accompany the accessibility to the Canadian Arctic. The next section will identify the conventional and non-conventional threats that Canada faces in the maritime Canadian Arctic. The two categorizations, conventional and non-conventional threats, are meant to distinguish the different types of threats that Canada faces. Conventional threats to defence and security can be defined as traditional challenges that Canada encounters in the Canadian maritime Arctic. With climate change, non-

conventional threats to defence and security are new challenges that could potentially impact Canada and its national interests.

Conventional Threats to Defence and Security

While conventional threats to defence and security in the Arctic are not the main focus of this paper, they have been identified and put into context below because they remain a distinct possibility and cannot be entirely ruled out even though they are unlikely to occur. The maritime Arctic states, especially Russia “consider a military confrontation on a large scale in the region as highly unlikely” however, none “have excluded limited conflicts, based primarily on control of natural resources, first and foremost energy.”⁴⁶

Many conventional threats to Canada’s defence and security have been recognized in the Government of Canada’s policy documents including the *2004 Securing an Open Society: Canada’s National Security*, the *2008 Canada First Defence Strategy*, and National Defence’s *Future Security Environment 2008-2030*. These documents distinguish international security as a core national security interest⁴⁷ and a key strategic area⁴⁸ since Canada now operates in a world influenced by globalization in which conventional external threats can suddenly impact Canada. In the context of the maritime Arctic, these international threats to Canada and Canadians include foreign state infringement on Canadian territory, terrorism, and the use of weapons of mass destruction.

⁴⁶ Zysk, Katarzyna. “Russia and the High North: Security and Defence Perspectives.” in Sven G. Holtmark and Brooke A. Smith-Windsor’s book *Security Prospects in the High North: Geostrategic Thaw or Freeze?*. NATO Defense College, 2009. Pg. 118.

⁴⁷ Canada Security Policy, “2004 *Securing an Open Society: Canada’s National Security*” Ottawa: Privy Council Office, 2004, PP. I-52. Pg. VII

⁴⁸ Canada Security Policy, Pg. X-XI.

Foreign State Infringement

The most probable form of a conventional threat to security would be foreign state infringement on Canadian territory. The two most possible scenarios in which a state would infringe on Canada's maritime boundaries would be from the United States and Russia. These two countries could potentially infringe on Canadian boundaries so as to exert their power and put pressure on Canada over remaining boundary disputes.

The United States could exert its power over Canada through state infringement so as to pressure Canada into decisions about the two countries' major maritime boundary disputes over the Beaufort Sea, continental shelf boundaries, as well as Canada's claim to the NWP.⁴⁹ The United States remains opposed to Canada's claim that the NWP should be defined as internal waters and argues that it is an international strait.⁵⁰ The distinction between Canada's claim of the NWP being considered as internal waters rather than international waters is significant. Canadian internal waters "...would mean that the Canadian government has the right to control who can enter these waters and under what conditions."⁵¹ International strait "... means that Canada does not have the final authoritative decision-making power over the [NWP]" and must rather "assert that the international community, ... through the International Maritime Organization, makes the final decisions."⁵² Although the two states disagree on the definition of the NWP, the United States would not stand to benefit from performing state infringement because these two countries are allies and conventional conflict will not commence over Arctic

⁴⁹ Huebert, Pg. 812.

⁵⁰ Elliot-Meisel. Pg. 205.

⁵¹ Huebert, Pg. 813.

⁵² Ibid.

territory. Both states have stated their intention of having the disagreements resolved peacefully through diplomatic negotiation. As both states share in the responsibility of continental security, this will not be a threat to Canadian security. Both countries will continue to work together to come to peaceful and mutually respectful agreements.

As mentioned, Canada's other largest threat of foreign state infringement of its territory could come from Russia. Russia has taken actions to increase its military posturing in the Arctic and from a traditional military capability analysis perspective could take hostile action against Canada should it wish to exert itself. Russia has, on numerous occasions, demonstrated that it has the military capabilities. It has shown its naval prowess when in "July 2008 Moscow announced it would send its Northern Fleet to patrol Arctic waters..." and it also "reported in September that a Northern Fleet submarine had completed a 30-day transit under the Arctic ice."⁵³ By air, Russia has proven its capabilities when in August of 2007, the Russian air force "...resumed long-range strategic bomber patrol flights over the Arctic that had been suspended after the end of the Cold War..."⁵⁴ In 2008, "there were fewer but more complex flights by long-range bombers, supported by tankers, escort fighters and reconnaissance aircraft"⁵⁵ and in February 2009, "...Canadian fighter jets intercepted a Russian bomber near Canada's Arctic airspace."⁵⁶ Despite these examples, it is just as likely that in these situations Russia was testing its own defensive mechanisms rather than threatening Canada's defence and security. In both cases identified, with Russia and the United States, using state infringement would create more tension and a signal of bad faith among countries. This would further perpetuate a damaging

⁵³ Blunden, Margaret. "The New Problem of Arctic Stability." *Survival* Vol. 51.5 2009. Pg. 126.

⁵⁴ *Ibid.*

⁵⁵ *Ibid.*

⁵⁶ Blunden, Pg. 127.

diplomatic environment which would not be conducive to the creation of resolutions to the current issues. It is for this reason that states will refrain from using state infringement as a form of action to threaten the defence and security of another country, such as Canada. Knowing the possible capabilities of both states, Canada will need to continue to monitor and work diplomatically with these countries if it is to meet its mandate of protecting the defence and security of both Canadians and the integrity of Canada.

Terrorism and the use of Weapons of Mass Destruction

Forms of terrorism, taking shape not unlike what occurred on September 11, 2001, and the use of weapons of mass destruction, although unlikely, should not be excluded from an Arctic state's defence and security planning process just as it is not excluded from a state's global defence and security policies.⁵⁷ In the future maritime Arctic environment in which there is increased activity, terrorism and even the consideration of weapons of mass destruction could become a possibility as there will be attractive targets which have a higher vulnerability and less defence and security protection. It could become very plausible for "terrorist attacks against oil and gas installations and infrastructure."⁵⁸ What is troubling is that, hypothetically "should an attack take place, it would be extremely challenging for Arctic states to assist in the rescue work because of the lack of infrastructure."⁵⁹ The Government of Canada will be required to remain vigilant to identifying various forms of potential threats just as it did throughout the Cold War when the Arctic was recognized as a significant strategic region in the world where the two

⁵⁷ Offerdal, Kristine. "High North Energy: Myths and Realities." in Sven G. Holtsmark and Brooke A. Smith-Windsor's book *Security Prospects in the High North: Geostrategic Thaw or Freeze?*. NATO Defense College, 2009. Pg. 174.

⁵⁸ Offerdal, Pg. 173.

⁵⁹ Offerdal, Pg. 174.

superpowers, the United States and the Soviet Union had direct access to one another.⁶⁰ In the past, the creation of surveillance systems, including North American Aerospace Defence Command (NORAD) and the distant early warning line system, ensured that North America could detect nuclear missile launches to respond accordingly. The Soviet Union also put in place similar surveillance measures.⁶¹ Canada will continue to use military capabilities to ensure that it is prepared to respond to perceived threats. In instances where the threat comes from the air, the responsibility of the monitoring rests with NORAD, which is “tasked with the responsibility for air defence of North America” against the identified threats.⁶² In the event the terrorist threat comes from the sea, Arctic states will continue to monitor as well as further develop emergency preparedness and additional forms of monitoring and surveillance so that action can be taken to respond to the perceived threat.⁶³ The Government of Canada continues to work with other states both bilaterally, and multilaterally, through international organizations such as the United Nations, G8, and others, to ensure detection and preventative measures are taken to remove the possibilities of these threats.⁶⁴

Non-conventional Threats to Canadian Defence and Security

Non-conventional threats to defence and security in the maritime Arctic pose the largest challenges to Canada because they are only now becoming realized as defence and security challenges and will have to be addressed differently, capability-wise, than conventional threats to

⁶⁰ Huebert, Pg. 813.

⁶¹ Ibid.

⁶² Coombs, Howard G. with Richard Goette, “Supporting the Pax Americana: Canada’s Military and the Cold War,” in Bernd Horn, ed. *The Canadian Way of War: Serving the National Interest* (Toronto: Dundurn Press, 2006), pp. 265-296. Pg. 37

⁶³ Offerdal, Pg. 174.

⁶⁴ Government of Canada - Foreign Affairs and International Trade Canada – Policy on Weapons of Mass Destruction - <http://www.international.gc.ca/arms-armes/control-controle/index.aspx> . Accessed: March 02, 2014.

defence and security. Non-conventional threats to defence and security are defined as new threats to a state. These new threats are not categorized through a traditional security lens, but they are considered threats nonetheless. Non-conventional threats are growing as the environment in the maritime Arctic changes, allowing for additional human activity in this area. As it is in the mandate of the Government of Canada to protect Canada, Canadians, and the continent of North America, the Canadian government will have to find ways of accounting for these new non-conventional threats to defence and security. As a result, defence and security operators will need to have additional capacity to be flexible and adapt to new challenges as they become more and more recognized. Acknowledging that the number of different types of non-conventional threats to defence and security will increase as the activity in the maritime Arctic matures, the most recognizable non-conventional threats to defence and security currently are: different forms of shipping including transit shipping and regional shipping; piracy; tourism; and other forms of illegal activity including illegal fishing, waste dumping, drugs and weapon smuggling, human trafficking, and illegal immigration.

Transit and Regional Shipping

Climate change in the Arctic will create an advantageous opportunity for the shipping industry. The Arctic environment will see “New maritime routes... [which] will become navigable within two or three decades.”⁶⁵ It is now only a matter of time that the opening up of sea lanes in the NWP, the Northern Sea Route, and through the middle of the Arctic, will bring about potentially new trade routes seen unlike ever before. Two major forms of shipping will grow due to increased accessibility to the maritime Arctic: transit shipping, for the travelling and

⁶⁵ Lytvynenko, Anneta. “Arctic Sovereignty Policy Review: Prepared for the Ad Hoc Committee of Deputy Ministers on the Arctic” April 5, 2011Pg. 2.

transferring of goods from one port to another and regional shipping for natural resources exploitation. In both cases of shipping, as will be explored, the “issue of control of such navigation” is important to Canadian defence and security, as with climate change in the Arctic will come increased risk in travelling in and through the Arctic.⁶⁶ Just as many European explorers in the 16th century saw the potential that the opening up of sea lanes in the Arctic had for states for the traveling and trading of goods, so do journalists and analysts today. Given the right changes to the Arctic environment, transit shipping in and through the Arctic could become an extremely lucrative business proposition for companies in the shipping industry. Transit shipping through the Arctic could substantially reduce the distance, costs, and time of shipping per trip. As it currently stands, 90% of all traded goods are delivered by the shipping industry, and those shipping costs contribute an estimated 6% of the product’s shelf price.⁶⁷ Shipping volumes have also increased over time and will continue to do so. The total volume of shipped goods has seen a rise by 43% between 2000 and 2009 from 23,000 billion tonne miles to 33,000 billion tonne miles.⁶⁸ Having additional seaways available for transit which present advantages of shorter time and distance travelled could have significant positive impacts on the shipping industry. For instance, an accessible NWP when compared to the Panama Canal, using the trip of Rotterdam, Europe’s largest port, to Shanghai, Asia’s biggest port, would ideally reduce travel time by two weeks, reduce the distance travelled by over 10,353 nautical miles, and would decrease a ship’s fuel price by approximately \$590,000 USD per trip.⁶⁹ The added benefit is that travelling by an alternate means would reduce overall traffic in heavily travelled shipping choke points such as through the Suez Canal and the Panama Canal. The way in which the shipping

⁶⁶ Lasserre, Pg. 179. (2009).

⁶⁷ International Chamber of Shipping website - www.marisec.org/shippingfacts/worldtrade/?SID=fd49dc745e408c957a53ceeda3908bf .

⁶⁸ Ibid.

⁶⁹ Tschudi Arctic Shipping SA available at - www.tschudiarctictransit.com/105eng.pdf .

industry conducts its business could change with new and efficient ways of delivering products currently being imported and exported to markets.⁷⁰

The threat that arises from increased transit shipping through the Arctic to Canadian defence and security is that although the seaways seem more accessible, they present greater danger and there are greater risks of hulls of ships hitting multi-year ice and thus sinking in an isolated area. As climate change is "...altering the character and distribution of sea ice, [it can] increase the likelihood of hull-penetrating, high altitude, multi-year ice that could cause major pitfalls for future navigation in some places in Arctic Canada."⁷¹ Multi-year ice can be defined as being ice that is "thicker, stronger, and takes longer to break up than seasonal first-year ice and thus presents a serious navigation threat to transiting ships."⁷² The changing of ice could also create circumstances in which ice fractures and mobilizes ice chunks, termed 'growlers' that "present a real hazard to shipping: small in size...about a meter large" but weigh "more than a metric ton."⁷³ They are difficult to detect and do not always float above the water surface.⁷⁴ Should a ship run into a growler, its hull would be easily compromised and this would present a very difficult search and rescue scenario. Growlers have been known to even sink ice-strengthened ships as was the situation in Antarctica in November 2007, in which the MS Explorer cruise ship sank.⁷⁵ Drastic environmental changes could also pose serious weather risks to those ships travelling through the Arctic. The thawing of the Arctic through the "melting of ice cap involves risks of icebergs and, not least, harsher and more unstable weather."⁷⁶

⁷⁰ International Chamber of Shipping website.

⁷¹ Stewart, Pg. 370.

⁷² Stewart, Pg. 375.

⁷³ Lasserre, Pg. 194. (2009).

⁷⁴ Ibid.

⁷⁵ Lasserre, Pg. 195. (2009).

⁷⁶ Offerdal, Pg. 168.

Predominantly, the melting of ice caps escalates the “probability of polar storms, which are extremely powerful and difficult to forecast even with today’s weather technology.”⁷⁷ Ships traveling through storms could increase the likelihood of accidents including the risks of ships running aground and becoming stuck in the Arctic. Although “shipping companies are in no rush to develop what they perceive as a risky and not necessarily profitable route”, due to insurance costs and fewer amount of stopover ports to drop off goods, ships transiting through the Arctic are growing in number. For instance, in summer 2004, “102 trips in the Northwest Passage and five complete transits” were conducted, and in 2008 it was “estimated that a record high of at least eight foreign pleasure craft...are somewhere in the Northwest Passage but Canada could not be sure of either the number of ships or their position.”⁷⁸ Canadian defence and security capabilities will be required to monitor ships traveling through the maritime Arctic. Canadian defence and security operators will also need to have the ability to intervene with the use of icebreakers should ships travelling through this region become stuck and request aid. Lastly, operators will also need to be prepared to respond to search and rescue should an accident in the Arctic occur.

Similar to transit shipping, regional shipping will also present a threat to Canadian defence and security. Regional shipping will support, over the long-term, businesses looking to extract the valuable resources in this area. It will remain difficult to work in the Arctic due to its “remoteness of the area and climate harshness of the climate,” however, with growth in natural resources extraction, the Arctic’s sea lanes could see a boost in traffic.⁷⁹ If extraction of resources from mines and hydrocarbon become prevalent, the support required to undergo the

⁷⁷ Offerdal, Pg. 168.

⁷⁸ Elliot-Meisel, Pg. 215.

⁷⁹ Lasserre, Pg. 184. (2009).

extraction and the fleet required to ship the resources to their respective markets would require the surveillance a lot of regional traffic.⁸⁰ Natural resources exploitation seems inevitable as “several oil and mining companies have invested in the Arctic to intensify exploration and exploitation.”⁸¹ The threat to Canadian defence and security, although similar to transit shipping, also presents the possibility of “threats to the environment should an oil tanker run aground or sink.”⁸² This event would be extremely dangerous as the polluting agent could permanently damage the local bio-ecosystem. In this case, the Government of Canada would have to have an environmental assessment and clean-up team which would need in support the defence and security capabilities to operate in the contaminated area.

In both cases of shipping, transit and regional shipping, UNCLOS omits the establishment of financing navigational, security and environmental services.⁸³ As a result, the burden of financing and providing these services falls to the territorial state. Due to their operational nature, defence and security capabilities will continue to be relied on and will play an important role as tools to mitigate issues in the maritime Arctic.

Piracy

Another possible non-conventional threat, piracy, seen as a new and mutated form of terrorism with different interests at stake could also be on the rise. Piracy has already grown in economically strategic areas of transit, such as off the Horn of Africa, in the Gulf of Aden, and in

⁸⁰ Lasserre, Pg. 184. (2009).

⁸¹ Lasserre, Pg. 185. (2009).

⁸² Lasserre, Pg. 183. (2009).

⁸³ Hamzah, B.A. “Funding of Services in the Straits of Malacca: Voluntary Contribution or Cost Recovery?” from Singapore Journal of International & Comparative Law 1999-3 p. 502

the Straits of Malacca, and could in the future become a perceived threat in the maritime Arctic as well. Piracy could become a real threat due to aggressors being “attracted...both by naval targets carrying valuable energy supplies, and by large vessels carrying Western tourists, as well as newly critical transport and communication hubs.”⁸⁴ In fact, an instance of piracy occurred in history when “North African pirates did attack Iceland in the 17th century.”⁸⁵ In these potential scenarios it is not implausible to think that, although unlikely due to the unpredictability of the climate and limited number of population and places to hide in, piracy could be possible if the right circumstances were to present themselves.⁸⁶ Canada as well as other maritime Arctic states will have to have the defence and security capabilities to intercept piracy, should it commence in the region, and work co-operatively so that these new forms of pirates cannot use territorial boundaries as a way to avoid arrest.

Tourism

Tourism, another non-conventional threat, will also pose a unique challenge to Canadian defence and security. The tourism industry, which already sees an opportunity to generate profit from the increased accessibility to and through the maritime Arctic, will continue to increase the number of cruise ships traversing through this area. The reasoning for the growth of the tourist industry in the Arctic includes “increasing tourist demand for travel to remote places, overall popularity of cruising worldwide, more sophisticated promotional activities by tour agencies, and increasing awareness at the political and community levels about the benefits of cruise

⁸⁴ Bailes, Pg. 37.

⁸⁵ Ibid.

⁸⁶ Ibid.

tourism.”⁸⁷ Moreover, tourism in the Arctic presents opportunity for tourists to experience “the image of wide open spaces, filled with wildlife, scenic landscapes, islands of aboriginal culture, and for English Canadians, at least, a national heritage in terms of history.”⁸⁸ The Arctic tourism industry has progressed to a phase of maturity in which there are “increased numbers of vessels, more demanding routes, and more regular and predictable patterns of activity.”⁸⁹ Increased tourism will grow as a concern to Canadian defence and security because the cruise ships that are voyaging through the Arctic are not ice-strengthened, thus creating a serious safety issue as there is a high possibility of accidents occurring in the Arctic. There is also an ongoing uneasiness “about the ability of each state in the region to provide search-and-rescue facilities if a large ship were to suddenly find itself in danger.”⁹⁰ This uneasiness stems from evidence that “navigable areas through the Northwest Passage actually have exhibited increases in hazardous ice conditions; navigation choke points remain and are due primarily to the influx of multi-year ice into the channels of the Northwest Passage” and therefore cruise operators traversing ships through Arctic waters “face considerable uncertainty in the future: rather than widespread accessibility...likely to be much more variability of ice conditions across the region.”⁹¹ Ship operators will especially experience sea-ice hazards particularly in the Western Canadian Arctic Archipelago, which contains as much as “50% multi-year ice because of the influx from the Canadian Basin and in situ formation...” and the Queen Elizabeth Islands “which have a mix of first-year ice and multiyear ice”.⁹² This uneasiness was confirmed in a report that was published in 2009 by the Arctic Council. The report, named the *Arctic Marine Shipping Assessment*

⁸⁷ Stewart, Pg. 374.

⁸⁸ Grenier, A.A. *The Nature of Nature Tourism*. Rovaniemi: University of Lapland, 2004. Pg. 311.

⁸⁹ Stewart, Pg. 374.

⁹⁰ Ebinger, Pg. 1223.

⁹¹ Stewart, Pg. 377.

⁹² Stewart, Pg. 371. Has a detailed visual map of tourism planned cruises.

Report, identified that there exists a “discrepancy between the pace of growth in Arctic marine tourism and investments being made in SAR equipment and infrastructure across the Arctic states.”⁹³ To address this issue, Arctic states came together at the Arctic Council where they created and agreed to a legally binding treaty for the co-operation of Arctic states in Search and Rescue. This treaty, which will be described in more detail later, is a very positive statement by the Arctic states; however, as maritime Arctic states have not invested in, and do not currently possess the defence and security capabilities required, it is unclear how the accepted treaty would be implemented, and how states would respond to an accident in the maritime Arctic.

Illegal Activity

Other forms of illegal activity including illegal fishing, waste dumping, drugs and weapon smuggling, human trafficking and illegal immigration all represent non-conventional threats to Canadian defence and security. As activity in the maritime Arctic increases, all these forms of illegal activity become more possible. That said, it will be difficult for these illegal activities to occur due to the “severity and unpredictability of the climate, and...smallness and limited variety of local populations, which makes it hard for hostile outsiders to ‘go to ground’ or even pass through unobserved.”⁹⁴ Canada will require defence and security capabilities to maintain a sovereign presence including requiring “combinations of enforcement vessels (aircraft and ships), trained personnel, and monitoring and surveillance capabilities” so as to protect Canadian interests.⁹⁵ Canada will also have to co-operate with other maritime Arctic states to overcome these illegal activities. As all the Arctic states’ “methodologies of deterrence and

⁹³ Government of Canada- National Search and Rescue Secretariat - http://www.nss.gc.ca/site/ss/magazine/vol20_1/news_e.asp#3 – as of Dec. 30, 2011.

⁹⁴ Bailes, Pg. 37.

⁹⁵ Brosnan, Pg. 189.

interdiction are sufficiently similar” when it comes to “sovereign activity to deter, detect, and interdict illegal activities,” this should not be difficult to achieve.⁹⁶ Canada has signalled interest in bilateral co-operation to stop illegal activities.⁹⁷

Canadian Defence and Security Policy

The following section will recognize current Canadian defence and security policies which outline how the Government of Canada plans to align itself so as to respond to both the conventional and non-conventional threats to defence and security already identified.

The Arctic is a cross-cutting issue and as was seen previously the challenges cannot be categorized under or solved by any single department in the Government of Canada. Moreover, it is important to note that the Department of National Defence and Canadian Armed Forces (DND/CAF) does not have the responsibility as the lead-department in the Arctic. The lead department on issues concerning the Arctic is Aboriginal Affairs and Northern Development Canada, formerly named Department of Indian and Northern Affairs Canada. DND/CAF is misperceived as the lead department in the Arctic because it is a major operator in the Arctic and has a presence in the Arctic. The Canadian Coast Guard, which is under the Department of Fisheries and Oceans, is a civilian-led special operating agency that also has strong participation in the Arctic. The Department of Foreign Affairs and International Trade is responsible for foreign policy and therefore Arctic diplomacy with other states as well as through the Arctic Council. Natural Resources Canada and Environment Canada will also see additional obligation to participate in Arctic issues as climate change and natural resources observers. As the Arctic is

⁹⁶ Brosnan, Pg. 180.

⁹⁷ Brosnan, Pg. 191.

a cross-cutting issue, especially across departments, the Government of Canada will require a whole-of-government approach and response when it comes to the Canadian maritime Arctic. From a defence and security perspective, “‘hybrid’ threats and challenges are likely to drive the Canadian Forces to seek a much deeper level of integration across the ‘whole of government’ as we seek to employ and leverage military power more holistically with all elements of national influence and power.”⁹⁸ Drawing on and growing internal relationships will also enable the CAF to achieve greater success in eliminating threats to Canadian defence and security.

In 2008, the Government of Canada and DND/CAF released the *Canada First Defence Strategy*. This strategy outlined all of Canada’s defence and security plans to protecting Canada and Canadian defence and security national interests. The strategy outlined that the most vital responsibility of the CAF is to “ensure the safety of our citizens and help exercise Canada’s sovereignty” which is part of their three roles: defending Canada, defending North America, and contributing to international peace and security.⁹⁹

The importance of the Arctic is apparent as it is part of the first core mission named in the strategy. The policy document states that the CAF has the responsibility of having the capability of “[c]onduct[ing] daily domestic and continental operations, including in the Arctic and through NORAD.”¹⁰⁰ NORAD, established in 1957, is operated bi-nationally, between Canada and the United States, and will continue to play a critical role in providing services of monitoring and surveillance of North American aerospace and of detecting conventional threats to North American security. The Department of National Defence has also stated that it recognizes that

⁹⁸ Mcfadden, Pg. 57.

⁹⁹ National Defence of Canada, *Canada Defence First Strategy*, 2008. Pg. 7.

¹⁰⁰ National Defence of Canada, Pg. 10.

“climate change is causing the Arctic to warm up, creating a progressive decrease in sea ice in the late summer” and that “[t]hese conditions are opening the North to increasing international activity by actors attracted to the prospect of economic gain”¹⁰¹. The *Canada First Defence Strategy* also recognizes an overall escalation in shipping, tourism, and resource exploration and exploitation, and these non-conventional threats to Canadian defence and security will also have to be accounted for going forward.¹⁰² This recognition by DND/CAF is important because it also has the distinct responsibility of providing search and rescue services in the Arctic. The National Search and Rescue Secretariat which is an “autonomous arm’s length organization within the Department of National Defence” is “responsible for the management and coordination of the National Search and Rescue (SAR) Program.”¹⁰³ This secretariat will continue to provide strategic advice so as to ensure that DND/CAF has the appropriate defence and security capabilities to perform search and rescue in the Arctic.

Both the Royal Canadian Navy (RCN) and the Canadian Coast Guard will also play a strong part in preserving Canadian interests with their associated defence and security capabilities. The RCN’s mandate has both domestic and international components. The RCN performs defence and security capabilities so as to guard the Canadian national interest domestically through “safeguarding [Canadian] maritime approaches, exercising sovereignty over [Canadian] waters, protecting [Canadian] offshore natural resources” while internationally “contributing to global security whenever and wherever issues arise that threaten our national

¹⁰¹ Teeple, Nancy. “A Brief history of intrusion into the Canadian arctic.” *Canadian Army Journal*, 12(3), (2010), Pg. 45.

¹⁰² National Defence of Canada, *Canada Defence First Strategy*, 2008. Pg. 6.

¹⁰³ Government of Canada- National Search and Rescue Secretariat.

interests.”¹⁰⁴ Canada’s navy fleet consists of 3 destroyers, 12 frigates, 2 supply ships, 4 submarines, and 12 coastal defence vessels “divided more or less evenly between the Atlantic and Pacific coasts”.¹⁰⁵ The Canadian Coast Guard’ mandate is to “support the Federal Government’s on-water programs and activities” which includes “maritime Search and Rescue, support to maritime security, fisheries conservation and protection, icebreaking, aids to navigation, and other on-water activities.”¹⁰⁶ Furthermore, the Minister of Fisheries and Oceans, through the *Oceans Act*, has the responsibility to task the Canadian Coast Guard to deliver on “services for the safe, economical, and efficient movement of ships in Canadian waters, through the provision of aids to navigation, marine communications, and traffic management services, icebreaking and ice management services, and channel maintenance.”¹⁰⁷ Lastly, the Canadian Coast Guard’s mission includes the identification and surveillance of international vessels transiting within 1000 nautical miles of Canadian coasts, or traveling to Canadian ports to maintain a fixed presence in the Arctic.¹⁰⁸ Of the different services which the Canadian Coast Guard provides, its icebreaker capabilities stand out as one of the most crucial operational programs in the maritime Arctic. Icebreakers provide a critical service as they ensure “the safe passage of goods and people through ice-infested waters” on a regular basis and receive an estimated “1,500 requests a year...to help commercial vessels to conduct their trade”.¹⁰⁹ The Canadian Coast Guard fleet operates two heavy-sized icebreakers, four medium-sized icebreakers, and seven light-sized icebreakers in addition to other search and rescue and patrol

¹⁰⁴ Canadian Navy “Canadian Navy at a Glance” - http://www.navy.forces.gc.ca/cms/12/12_eng.asp .

¹⁰⁵ Canadian Navy. “The Fleet.” - http://www.navy.forces.gc.ca/cms/1/1_eng.asp .

¹⁰⁶ Canadian Coast Guard. Canadian Coast Guard: 2009-2010 Fleet Annual Report. <http://www.ccg-gcc.gc.ca/folios/00005/docs/fleetar-10-eng.pdf> . (2010) Pg. 1.

¹⁰⁷ Canadian Coast Guard: 2009-2010 Fleet Annual Report.. Pg. 5.

¹⁰⁸ United States Geological Survey, “Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle.” USGS Fact sheet #2008-3049, 2008, Pg. 3.

¹⁰⁹ Canadian Coast Guard 2009-2010 Fleet Annual Report. Pg. 38.

type vessels.¹¹⁰ The Government of Canada announced in 2008 that it will be purchasing an additional polar class icebreaker. This will provide significantly advanced capabilities as it will be the only icebreaker in Canadian possession that is configured with the highest standard of capability, one that can operate throughout the entire calendar year, and is built to withstand all the dangers that come with travelling through the Arctic. The new polar icebreaker will be named in commemoration of former Prime Minister John George Diefenbaker. It will cost approximately \$720 million and is scheduled to come into operation in 2017 in order to replace the CCGS Louis S. St-Laurent icebreaker.¹¹¹ The Canadian Coast Guard's icebreakers will remain a cornerstone of Canadian defence and security maritime Arctic capabilities as they provide a Canadian presence in the maritime Arctic and can be called into use in times of distress or to monitor suspicious activity in the Arctic.

The Government of Canada, and by extension DND/CAF, will have to prepare for the defence and security responsibilities that come with this inevitable change through developing and retaining defence and security capabilities. The main priority of the federal government is to “provide the planning certainty required to allow the Government to continue rebuilding the Canadian Forces into the state-of-the-art military that Canada needs and deserves.”¹¹² The following list identifies requirements the Government of Canada perceives the DND/CAF will need to respond to conventional and non-conventional threats to defence and security, including requirements in the maritime Arctic.

¹¹⁰ Canadian Coast Guard. Canadian Coast Guard: 2009-2010 Fleet Annual Report. Pg. 21.

¹¹¹ The CCGS John G. Diefenbaker National Icebreaker Project. – Apr. 2010 <http://www.ccg-gcc.gc.ca/e0010762>.

¹¹² National Defence of Canada, *Canada Defence First Strategy*, 2008. Pg. 3.

Replace the Canadian Forces' core equipment fleets including:

- 15 ships to replace existing destroyers and frigates
- 10 to 12 maritime patrol aircraft;
- 17 fixed-wing search and rescue aircraft
- 65 next-generation fighter aircraft
- a fleet of land combat vehicles and systems.
- Strengthen the overall state of the Forces' readiness to deploy, and their ability to sustain operations once deployed
- Improve and modernize defence infrastructure¹¹³

The Government of Canada also promised to purchase for the RCN, 6-8 arctic/offshore patrol ships that are hull strengthened to withstand single-year ice.¹¹⁴ The Government of Canada had good intentions with these announcements for purchases; however, due to the 2008 economic crisis, many of these projects have been put under temporary suspension until further notice due to the large costs associated with the equipment purchases, the long drawn out procurement processes, and the government's departmental budget cuts.¹¹⁵ Briefing material from DND to the Associate Minister of National Defence, Julian Fantino, retrieved from an access to information request in 2012, stated that "[t]he funding reductions from Budget 2010 and the reduced funding line going forward will make the Canada First Defence Strategy (CFDS) unaffordable," that "[t]he department will be challenged to deliver on the CFDS commitments as a result of forecasted decreases in funding and increased in costs," and lastly that "time delays and cost pressures' had significantly affected progress on replacing the RCN's destroyers and frigates, acquiring new search-and-rescue aircraft, and a plan to buy new maritime patrol aircraft."¹¹⁶ To

¹¹³ National Defence of Canada, Pg. 4.

¹¹⁴ National Defence of Canada, Pg. 4.

¹¹⁵ Pugliese, David. "Canada First Defence Strategy Unaffordable, According to DND Documents Prepared for Fantino." Ottawa Citizen. – Defence Watch. Posted June 4, 2012. 6:59 pm. Accessed: March 9, 2014. <http://blogs.ottawacitizen.com/2012/06/04/canada-first-defence-strategy-unaffordable-according-to-dnd-documents-prepared-for-fantino/>.

¹¹⁶ Ibid.

combat the economic crisis, the Government of Canada focused on economic policies and put many of its defence and security procurement policies on hold.

The Government of Canada has also made numerous announcements for investment in Canadian defence and security beyond those outlined in the 2008 strategy. In 2007, the Government of Canada stated it wanted to increase its presence in the Arctic and would do so by building and manning a “a deep-water port facility with an airfield to be constructed in Nanisivik on Baffin Island, Nunavut, and a northern Canadian Forces’ training base in Resolute Bay” with a completion date of 2016.¹¹⁷ Nanisivik would be located on “Strathcona Sound, which leads directly onto the Northwest Passage, giving an opportunity to thoroughly patrol what is claimed to be Canada’s internal waters” at an original cost of \$175 million.¹¹⁸ As was the case with many other defence procurements, Nanisivik suffered severe financial cut backs in its funding as a program. Nanisivik is now considered a “diminished and delayed plan for establishing a key naval facility in Canada’s Arctic.”¹¹⁹ According to Arctic specialist Michael Byers, Nanisivik’s intent was for it to be a “year-round facility with permanent communications, permanent accommodation, storage for two-year’s worth of fuel” and “involve the previous runway at Nanisivik that was capable of handling C-17.”¹²⁰ Instead, Nanisivik’s capabilities have been scaled back, its scope reduced, and it will be used predominantly for fuel storage.¹²¹ Nanisivik’s

¹¹⁷ Lytvynenko, Pg. 9.

¹¹⁸ Lytvynenko, Pg. 10.

¹¹⁹ Berthiaume, Lee. Key Arctic naval facility delayed by budget cuts despite being announced with much fanfare by PM in 2007. National Post. Published: August 21, 2013. Accessed: March 09, 2014. <http://news.nationalpost.com/2013/08/21/key-arctic-naval-facility-delayed-by-budget-cuts-despite-being-announced-with-much-fanfare-by-pm-in-2007/>

¹²⁰ Ibid.

¹²¹ Ibid.

completion of construction date was supposed to be 2015, but a DND spokesperson confirmed that the project has been delayed and will not become operational until 2017.¹²²

The Polar Epsilon Project, started on 30 May 2005, is another capability that remains important to maritime Arctic Canadian defence and security capabilities. The Polar Epsilon Project is a made in Canada program that uses RADARSAT-2 satellite technology to monitor and gather surveillance information for the Government of Canada.¹²³ This project is a “space-based wide area surveillance and support capability that is owned and run by DND.”¹²⁴ The original estimated cost of Polar Epsilon was projected for \$64.5 million, however, this no longer remains the case.¹²⁵ The original calculated cost did not include the cost of \$445 million the Government of Canada financed to develop and launch the RADARSAT-2 satellite, which is property-owned and operated by MacDonald Dettwiler and Associates.¹²⁶ The project stalled and then recommenced. It is now predicted to cost \$706-million.¹²⁷ The project “is designed to provide all-weather day/night surveillance”¹²⁸ and uses RADARSAT-2 technology to “...produce imagery for military commanders in their area of responsibility during the conduct of operations” which “...can be used for precise cueing and location of activities, which allows for a more efficient and cost-effective use of other Canadian military assets, such as patrol aircraft and ships.”¹²⁹ This capability has the unique function of being able to track the

¹²² Berthiaume, (National Post Website)

¹²³ Munton, Don. “Defending the Canadian Public”. Canadian Military Journal. Autumn 2003. PP. 25-33. Pg. 25.

¹²⁴ Department of National Defence-Polar Epsilon. “A new step for the Polar Epsilon project” March 30, 2009. <http://www.forces.gc.ca/site/commun/ml-fe/article-eng.asp?id=6335> - as of December 1, 2011.

¹²⁵ Department of National Defence-Polar Epsilon.

¹²⁶ Department of National Defence-Polar Epsilon.

¹²⁷ Jang, Grent. “Contract gives MacDonald Dettwiler a \$706-million Arctic view”. *Globe and Mail*, 9 January 2013. - <http://www.theglobeandmail.com/report-on-business/international-business/european-business/contract-gives-macdonald-dettwiler-a-706-million-arctic-view/article7138167/>.

¹²⁸ Munton, Pg. 25.

¹²⁹ Department of National Defence-Polar Epsilon.

movement of vessels and even the possibility of ship classification.¹³⁰ The CAF, while working with the Canadian Coast Guard and the RCMP will be able to survey and track the movement of vehicles in Canadian borders. A strength of Polar Epsilon is that it is able to “survey for oil or water pollution, aircraft or satellite crash sites...” in the Arctic and enable DND/CAF to alert proper authorities to intervene if necessary. A disadvantage of this space-based capability is that it is not able to “detect ballistic missiles, nor can it track small vessels or individuals.”¹³¹ Despite its limitations, the Polar Epsilon Project can continue to provide maritime Arctic surveillance to DND/CAF and the Canadian Coast Guard to perceived non-conventional threats including various forms of shipping, piracy, tourism, and other forms of illegal activity. Additional monitoring and surveillance capabilities will be required to observe smaller vessels or individual activity in the Arctic.

Lastly, in preparation of external threats, both conventional and unconventional, the CAF partake in three sovereignty operations: Operation *NANOOK* - in the Eastern Arctic-, Operation *NUNALIVUT*- in the High Arctic-, and Operation *NUNAKPUT*- in the Western Arctic-.¹³² Joint Task Force North in Yellowknife, Northwest Territories plan and oversee these annual operations so to improve “interoperability, command and control, and cooperation with interdepartmental and intergovernmental partners in the North.”¹³³

¹³⁰ Munton, Pg. 25.

¹³¹ Department of National Defence-Polar Epsilon.

¹³² Canada Command - National Defence of Canada . “Canada Begins Annual Arctic Sovereignty Operation” August 6, 2010. <http://www.canadacom.forces.gc.ca/docs/pdf/NR10-nanook-eng.pdf> . Pg. 1.

¹³³ Ibid.

Section 3: Recommendations for Canada

The Canadian government must invest additional defence and security resources into capabilities in order to be prepared for the newly-emerging, non-conventional threats to defence and security in the Arctic. Below are recommendations to improve Canadian defence and security capabilities in the maritime Arctic. The recommendations will be categorized into three different types of recommendations: developing and procuring additional capabilities, modifying governance, and collaborating with other maritime Arctic states. The first set of recommendations evaluates what additional Canadian defence and security capabilities could be developed or accumulated so as to enhance the DND/CAF and Canadian Coast Guard's current capabilities. This section will also name ways to strengthen the operationalization of defence and security capabilities. Increased activity in the Arctic from conventional and non-conventional threats will require the Canadian government to invest in preparedness which is defined as "having the appropriate military capability to deter and/or meet plausible external threats."¹³⁴ The second type of recommendation presented is a way in which the Government of Canada can modify its governance structure so as to improve responsibility in its maritime Arctic. Although the recommendation is unorthodox, it could potentially enhance Canadian defence and security capabilities while limiting the costs associated with improving Canadian defence and security capabilities. The third set of recommendations offered are ways in which the Government of Canada can augment its defence and security capabilities through working in co-operation and in partnership with other maritime Arctic states. Doing so will also give Canada the opportunity to resolve its remaining maritime border disputes. The solutions below

¹³⁴ Munton, Pg. 25.

are potential policies that Canada can implement and actions that it can take to improve its capabilities in the North and thus its preparedness in addressing its diverse threats to defence and security to protect the Canadian national interest.

Developing and Procuring Additional Capabilities

Increasing Icebreaking Capabilities

One recommendation to increasing Canadian defence and security capabilities in the maritime Arctic would be for the Government of Canada to invest in additional icebreakers. Acquiring additional icebreakers will enable the Canadian Coast Guard to keep pace with the perceived increase in activity in the maritime Arctic from non-conventional threats to defence and security such as shipping and simultaneously enforce Canadian laws in its Arctic territory. As activity in the Arctic increases, especially with ice-strengthened ships able to penetrate multi-year ice, so will the number of distress calls and requests for icebreaking services, which are currently around 1,500 a year.¹³⁵ Many “...experts agree that icebreakers will remain an important component of the Canadian and the United States’ fleet.”¹³⁶ The Canadian Coast Guard has limited capabilities and does not currently possess the fleet to meet the eventual increase in activity and, therefore, in non-conventional threats to defence and security. One limited capability is that the Canadian Coast Guard does not currently operate a polar class icebreaker with the ability to operate in multi-year ice. The government should consider this a large risk because it is limited in its ability to respond to an accident in an ice-concentrated area. The government has committed to procuring one polar class icebreaker, which will come into

¹³⁵ Canadian Coast Guard 2009-2010 Fleet Annual Report. Pg. 38.

¹³⁶ Elliot-Meisel, Pg. 217.

operation in 2017. It will have the capability to operate year round, withstand the most severe weather conditions that the Arctic can offer, improve operations, and present a credible presence in the maritime Arctic.¹³⁷ However, a major problem is that it will remain the only ship able to do so. Should the new polar icebreaker require maintenance or be operating in another part of the Canadian maritime Arctic, the Canadian Coast Guard will be unable to respond to distress calls or any other threats to Canadian defence and security. The procurement of at least one additional polar class icebreaker would alleviate this large risk that could leave Canadian defence and security vulnerable.

Further to procuring additional icebreakers, the Canadian Coast Guard should conduct succession planning of vessels to maintain operational capability. The Canadian Coast Guard's fleet is old and the new Diefenbaker polar class icebreaker will not be adding to the amount of vessels available to the Canadian Coast Guard. Rather, it will be replacing the CCGS Louis S. St-Laurent icebreaker which is scheduled to be decommissioned in 2017.¹³⁸ On top of this, the only other large-sized icebreaker similar to the CCGS Louis S. St-Laurent icebreaker is the CCGS Terry Fox, which is to be decommissioned in 2020.¹³⁹ As the Canadian Coast Guard's large-sized icebreaker, the CCGS Terry Fox, is close to approaching the end of its life-cycle, the federal government should begin the process of succession planning for this ship and begin to analyse and evaluate whether additional icebreakers will be required to match the additional activity that will certainly increase in the region.¹⁴⁰ The government should strongly consider replacing the CCGS Terry Fox with the procurement of another icebreaker. Doing so will enable

¹³⁷ The CCGS John G. Diefenbaker National Icebreaker Project

¹³⁸ Ibid.

¹³⁹ Canadian Coast Guard Article: 01 --08- 2013- <http://www.ccg-gcc.gc.ca/vessel-procurement/Polar-Icebreaker> . Accessed: 19.03.2014.

¹⁴⁰ Ibid.

the Canadian Coast Guard to, at the very least, maintain its current capabilities and ensure, in the event that the Diefenbaker icebreaker requires maintenance, that there is another ship able to operate in multi-year ice conditions.

This recommendation is also in line with the information submitted by the Auditor General on the Canadian Coast Guard's fleet of older icebreakers. As reported in the Auditor General's 2007 report, from 2002-2003 to 2005-2006 vessel unplanned maintenance, calculated as a percentage of planned service delivery, rose from 3.7% to 5.5% which equalled to 166 operational days lost to unplanned maintenance across the fleet.¹⁴¹ Moreover, from 2000-2006, the expenditures for annual vessel maintenance has climbed by around 50%.¹⁴² Overall, according to the *Canadian Coast Guard's Investment Plan*, the refit and maintenance costs have risen sharply by 64% between 2005 and 2010.¹⁴³ The replacement of the Coast Guard's older icebreakers, although costly, should be strongly considered as it will enhance reliability of service, shrink unplanned maintenance costs, and evade expensive investments for vessel operational-life extensions while improving overall operational capacity of the Canadian Coast Guard.

The recommendation of purchasing icebreakers to increase Canadian defence and security capabilities is supported by a Canadian Senate Committee. The Senate Committee on Fisheries and Oceans have communicated that icebreakers are a required capability. The Senate Committee articulated that "Canada's icebreaking fleet will not be adequate once [Arctic]

¹⁴¹ Auditor General of Canada.. 2007 February Status Report, Chapter 4: Managing the Coast Guard Fleet and Marine Navigational Services. 2007

¹⁴² Ibid.

¹⁴³ Canadian Coast Guard. Investment Plan 2010/11 -2014/15. Ottawa: Department of Fisheries and Oceans. - <http://www.ccg-gcc.gc.ca/e0012060> . 2013-06-24 .

shipping increases.”¹⁴⁴ In the Senate Committee’s *The Coast Guard in Canada’s Arctic: Interim Report* it states that Canada requires a “year-round northern operation administered in the North to demonstrate that Canada is serious about protecting Canadian interests and the interests of Canada’s northern residents” and calls for “the acquisition of a suitable number of new multi-purpose polar icebreakers capable of operating year-round in its Arctic Archipelago and on the continental shelf.”¹⁴⁵ The Senate Committee has also called expert witnesses and they have given testimony that more than one polar icebreaker will be required.¹⁴⁶ Moreover, when comparing the defence and security capabilities of other maritime Arctic states it is clear that their intention is to maintain larger icebreaker fleets so as to operate in Arctic waters. The United States Coast Guard which undertook its *High Latitude Study* to evaluate its icebreaking requirement has decided to reactivate one polar icebreaker and purchase another which will come into commission when the reactivated icebreaker’s life-cycle ends.¹⁴⁷ The United States Government is still considering options to purchase, or even lease, additional icebreakers.¹⁴⁸ Russia has also invested in twelve nuclear-powered icebreakers to increase its capabilities in the Arctic.¹⁴⁹ At one time the Canadian government did intend to procure three polar icebreakers; however, economic difficulties prevented this from materialising.¹⁵⁰ With Canada now in a stronger position economically it should reconsider the purchasing of more polar icebreakers. Thus, from an operational perspective, to improve Canadian defence and security capabilities in

¹⁴⁴ Standing Senate Committee on Fisheries and Oceans. 2008. *The Coast Guard in Canada’s Arctic: Interim Report*. Ottawa: Parliament of Canada. Pg. 25.

¹⁴⁵ The Standing Senate Committee on Fisheries and Oceans – Second Report - April 15, 2010. Pg. 3. <http://www.parl.gc.ca/40/3/parlbus/commbus/senate/com-e/fish-e/rep-e/rep02apr10-e.pdf>.

¹⁴⁶ Standing Senate Committee on Fisheries and Oceans, 27.

¹⁴⁷ O’Rourke, Ronald. “Coast Guard Polar Icebreaker Modernization: Background and Issues for Congress”. February 11, 2014 – Congressional Research Service. <https://www.fas.org/sfp/crs/weapons/RL34391.pdf>. Pg. 1-2.

¹⁴⁸ O’Rourke, Pg. 24-34.

¹⁴⁹ Standing Senate Committee on Fisheries and Oceans, Pg. 9.

¹⁵⁰ Moore, S.W. *Defending Canadian Arctic Sovereignty: An Examination of Prime Minister Harper’s Arctic Initiatives*. Canadian Forces College. 2007. Pg. 15.

the maritime Arctic, it is imperative that the Government of Canada purchase additional polar icebreakers. At the very least, Canada should purchase one polar icebreaker so as to accommodate the increased activity in the area and in order for the Canadian Coast Guard to meet its mandate and respond to non-conventional threats to defence and security.

Intelligence, Surveillance, and Reconnaissance

One set of capabilities that the Government of Canada can invest resources into are the Intelligence, Surveillance, and Reconnaissance (ISR) capability. ISR capability can be defined as “the capability that integrates command direction, sensors, and processed formation and intelligence with timely dissemination in order to provide decision makers with effective ‘Situational Awareness’.”¹⁵¹ Essentially, ISR uses different monitoring and surveillance capabilities integrated together to perform as a unit. ISR will enable the DND/CAF to better detect, monitor, and react to increased activity in the Arctic, including non-conventional threats.¹⁵² Major P.J. Butler, an air force intelligence officer and a specialist in ISR, states that:

The overall requirement in domain awareness is to detect, classify, identify, track and determine intent. As no single sensor is capable of meeting all of these requirements all of the time, the strongest surveillance architecture exists when the strengths of all available surveillance sensors are used in a complementary manner.¹⁵³

Thus, ISR operates best when multiple forms of monitoring and surveillance operate in a network to provide many types of defence and security related information. Canada’s current

¹⁵¹ Barber, Josh, Commander. “An Intelligence, Surveillance and Reconnaissance (ISR) Vision For the Canadian Forces.” *Canadian Military Journal*. Winter 2001-2002. PP. 41-46. Pg. 42.

¹⁵² Bond, Levon. “JUSTAS and Project Epsilon: Integrated Intelligence, Surveillance, and Reconnaissance of the Canadian Arctic”. *Canadian Military Journal* vol. 11, No. 4, Autumn 2011. Pg. 24.

¹⁵³ Butler, P.J. Major “Project Polar Epsilon: Joint Space-Based Wide Area Surveillance and Support Capability,” in *International Society for Photogrammetry and Remote Sensing*, at <http://www.isprs.org/proceedings/2005/ISRSE/html/papers/1000.pdf> . Accessed 14 August 2012.

surveillance systems do not operate in an integrated way. As previously identified, Canada operates Project Polar Epsilon, which uses RADARSAT-2 technology to monitor the maritime Arctic. Project Polar Epsilon has its weaknesses as it sometimes cannot track individual or small vessels.¹⁵⁴ To mitigate this problem the DND/CAF should develop multiple monitoring and surveillance systems and integrate them with other ISR assets so as not to be overly reliant on any one surveillance system. In this case, the RADARSAT-2 should not be operating as the “sole provider of intelligence imagery” and rather, should be “co-located with the like processes of other intelligence collection platforms, or at least remotely linked.”¹⁵⁵ Canada, through the Canadian Space Agency, is launching, in 2014, a new Maritime Monitoring and Messaging Micro-Satellite (M3MSat) which will greatly improve monitoring and surveillance in the maritime Arctic domain.¹⁵⁶ M3MSat will be able to “identify and record marine traffic, know vessels' direction and cruising speed and ensure that they navigate legally and safely in Canadian waters.”¹⁵⁷ Integrating different maritime surveillance assets such as the AIS (Automatic Identification System), and LRIT (Long Range Identification and Tracking)¹⁵⁸ will also help DND/CAF “achieve near-real-time ship detection, and develop the recognized maritime picture.”¹⁵⁹ DND/CAF should integrate M3MSat with Project Polar Epsilon and other ISR assets so as to develop an ISR capability that can provide a thorough monitoring and surveillance capability in the maritime Arctic. Achieving an integrated ISR will improve overall defence and security capability for the maritime Arctic and prepare defence and security operations for non-conventional threats to defence and security.

¹⁵⁴ Department of National Defence-Polar Epsilon.

¹⁵⁵ Bond, Pg. 26.

¹⁵⁶ Canadian Space Agency. Maritime Monitoring and Messaging Micro-Satellite (M3MSat) - <http://www.asc-csa.gc.ca/eng/satellites/m3msat/> . 2013-12-03.

¹⁵⁷ Ibid.

¹⁵⁸ Offerdal, Pg. 174.

¹⁵⁹ Butler, Pg. 1.

Joint Unmanned Surveillance Target Acquisition System (JUSTAS)

One capability that the CAF has been told to put on hold but that should be further actioned so as to improve Canadian defence and security capabilities in the Arctic, is the Joint Unmanned Surveillance Target Acquisition System (JUSTAS). JUSTAS would be Canada's version of an unmanned aerial surveillance program.¹⁶⁰ The JUSTAS program was "endorsed by the military's Senior Review Board in October 2000".¹⁶¹ Moreover, in the Royal Canadian Air Force's (RCAF) strategic planning document, *Projecting Power Trends Shaping Canada's Air Force in the Year 2019*, the RCAF acknowledged that unmanned aerial system (UAS) as well as other semi-autonomous and intelligent systems could be used to provide surveillance in the Arctic.¹⁶² Despite the endorsement, the program has not been further developed since the Government of Canada delayed its decision to "commit to the procurement of either a high or medium altitude, long endurance (HALE or MALE), unmanned aerial system (UAS)."¹⁶³ Although the Government of Canada has delayed its procurement decision, the RCAF remains committed to the JUSTAS program. On March 25, 2013, the Commander of the RCAF Lt.-Gen. Blondin confirmed in the *Standing Senate Committee on National Security and Defence* that drones are a Canadian requirement.¹⁶⁴ The use of UAS, also known as drones, could be an attractive capability in the Arctic because they can provide a defence and security presence, they can cover large distances of territory in a short amount of time, and are cheaper to operate than traditional air force fleets. An approximate cost for a drone with surveillance capabilities would

¹⁶⁰ Bond, Pg. 25.

¹⁶¹ Bond, Pg. 27.

¹⁶² Ibid.

¹⁶³ Bond, Pg. 25.

¹⁶⁴ Government of Canada Senate Committee - The Standing Senate Committee on National Security and Defence Evidence. <http://www.parl.gc.ca/content/sen/committee/411/SECD/50054-e.HTM> - March 25, 2013.

cost approximately between \$150 million and \$170 million.¹⁶⁵ The capabilities of drones to provide monitoring and surveillance for instance a HALE, specifically the *Global Hawk*, could “accurately survey large geographic areas such as the Canadian Arctic, providing real-time information regarding the location, resources, and personnel of possible adversaries”¹⁶⁶ and can stay in the air for up to 35 hours while providing real-time video.¹⁶⁷ As Lt.-Gen. Blondin states, they “have got the range and endurance to be able to go on long patrols and be our eyes in the sky in the Arctic”.¹⁶⁸

According to Lt.-Gen. Blondin, the UAS will serve a dual purpose for both domestic operations, including maritime patrol and search and rescue, and deployed operations, including peacetime/aid and wartime operations.¹⁶⁹ He says that for operations the drones must also be able to gather information as well as carry some equipment such as packages, for search and rescue, or weapons for operations.¹⁷⁰ Lt.-Gen. Blondin has stated that the RCAF JUSTAS program is continuing to develop an “option analysis” for the acquisition of UAS.¹⁷¹ Furthermore, Lt.-Gen. Blondin has mentioned that an acquisition decision has not yet been made because “[i]f you commit yourself too early with a very expensive program, there are new ones coming in that are not far behind that will give you different capabilities and could be much

¹⁶⁵ Brewster, Murray. “Ottawa looks at drones for North”. The Canadian Press, May 31, 2012.

<http://metronews.ca/news/canada/243668/ottawa-looks-at-drones-for-north/>.

¹⁶⁶ Bond, Pg. 27.

¹⁶⁷ Brewster, Murray. “Ottawa looks at drones for North”. The Canadian Press, May 31, 2012.

<http://metronews.ca/news/canada/243668/ottawa-looks-at-drones-for-north/>.

¹⁶⁸ Government of Canada Senate Committee - The Standing Senate Committee on National Security and Defence Evidence.

¹⁶⁹ Ibid.

¹⁷⁰ Ibid.

¹⁷¹ Ibid.

cheaper”.¹⁷² The RCAF did use UAS in Afghanistan, but they were acquired through a lease system.¹⁷³ The RCAF found that during operations in Afghanistan and Libya, NATO countries imposed many constraints on the use of UAS and this impacted operations.¹⁷⁴ By having a UAS program under its own control, the RCAF will be in a better position to support its own operations.

The Government of Canada should re-visit its decision in the delaying of the JUSTAS program and review the options analysis being developed by the RCAF to evaluate when will be the best time to procure this capability. The Government of Canada should also take into consideration that the longer it goes without procuring its own UAS the more it “runs the risk of losing any expertise it built up in the Afghan war with UAVs by not operating the larger size systems” although there are a few CF personnel that are on exchange in foreign militaries that use UAS.¹⁷⁵ The best way Canada can maintain the CAF’s strong level of proficiency in this capability will be to acquire and use UAS on a regular basis. The JUSTAS program can play a critical role in supporting overall defence and security capabilities in the maritime Arctic as its ability to provide different forms of surveillance operations would be useful in preventing non-traditional threats to defence and security.

¹⁷² Pugliese, David. “Delay in Purchasing UAVs Has A Silver Lining – RCAF Commander Lt.-Gen. Yvan Blondin Sticks To His Talking Points”. Defence Watch. <http://blogs.ottawacitizen.com/2013/03/27/delay-in-purchasing-uavs-has-a-silver-lining-rcaf-commander-lt-gen-yvan-blondin-sticks-to-his-talking-points/> – March 27, 2013.

¹⁷³ Bond, Pg. 27.

¹⁷⁴ Government of Canada Senate Committee - The Standing Senate Committee on National Security and Defence Evidence.

¹⁷⁵ Ibid.

Northern Watch Program

Another surveillance capability program that the Government of Canada could progress is the Northern Watch Program under development by Defence Research and Development Canada (DRDC). DRDC is a specialized operating agency within DND which is responsible for providing science and technology advice to the department and develops, through scientific research and development, defence and security capabilities for the CAF. The Northern Watch program started in 2008 to perform “a series of trials, studies and simulations which will explore surveillance capabilities in the unique arctic environment.”¹⁷⁶ The Northern Watch program’s objective is now to “identify and characterize combinations of sensors and systems that will ultimately prove capable of providing a cost-effective Recognized Maritime Picture for the Canadian Arctic.”¹⁷⁷

When the program was started, the government agreed to a four-year contract of C\$10 million.¹⁷⁸ However, the program experienced delays and halts in operations.¹⁷⁹ Although it appears to have recommenced, further investment in the program’s trial runs and additional resources could expedite the development of the capability to the point that it can be a fully operational capability to support overall monitoring and surveillance in the Arctic. Unlike other surveillance technologies, Northern Watch could deliver “cost-effective technological options for

¹⁷⁶ DRDC Website - <http://www.drdc-rddc.gc.ca/news-nouvelles/spotlight-pleinfeux/index-eng.asp> . As of December 2011.

¹⁷⁷ MacLeod, Matthew. Talia McCallum, and David Waller. “Measuring Northern Watch: Goals, Inputs, Metrics, and Outputs.” Defence Research and Development Canada. National Defence. January 2009. http://cradpdf.drdc-rddc.gc.ca/PDFS/unc124/p531224_A1b.pdf . Pg. III.

¹⁷⁸ Elliot-Meisel, Pg. 219.

¹⁷⁹ CBC News - “Northwest Passage surveillance study halted” <http://www.cbc.ca/news/canada/north/northwest-passage-surveillance-study-halted-1.783545> . July 24, 2009.

northern surveillance on the water, underwater, on land, and in the air.”¹⁸⁰ Providing surveillance of information from water, underwater, and land is a capability that the CAF does not currently possess and this underwater program could give Canada a unique advantage in developing this type of technology. This defence and security capability could also be critical to closing the gap for the CAF and Canadian Coast Guard in identifying and tracking individual or small vessel activities in the Arctic that are currently difficult to monitor with other technologies such as satellite technology. Further developing this technology could aid the CAF and Canadian Coast Guard in monitoring and preventing non-conventional threats to defence and security, such as the illegal activities identified, from occurring.

Re-evaluating Nanisivik’s Operational Capacity

One defence and security capability that the Government of Canada should revisit is the Nanisivik, deep-water port facility. As previously mentioned, the scope of this program was scaled back in funding and capability due to the 2008 economic crisis. The Government of Canada should re-evaluate this program’s operational capacity because its presence along Canada’s maritime Arctic seaways could greatly improve DND/CAF and the Canadian Coast Guard’s capabilities in the remote Arctic. Moreover, as activity increases in the future and more Canadian ships are operating in the area, Nanisivik can serve as a strong base of operations to increase overall presence and support in the prevention of non-conventional threats to defence and security from occurring. As the Government of Canada forecasts a governmental balanced budget going forward, it should strongly consider expanding the scope of Nanisivik so that Canadian operators can function effectively in the maritime Arctic.

¹⁸⁰ DRDC Website.

Modifying Governance

The following recommendation is a way in which the Government of Canada could modify its governance structure so as to improve responsibility in its maritime Arctic and thus support its current defence and security capabilities. An unorthodox solution to increasing Canadian security in the Arctic while not drastically increasing costs associated with investment in additional capabilities would be to build upon the NORAD agreement with Canada's closest ally, the United States, to encompass maritime operational environments.¹⁸¹ Primary benefits of this new framework for both Canada and United States is the strengthening of continental security in a cost-effective way through the complimentary use of each state's Arctic resources thus freeing up the ability of each state to allocate future resources to capabilities that both countries do not already possess.¹⁸² A secondary benefit of this solution is that the ongoing ocean boundary disputes between Canada and the United States as well as claims of the NWP could be addressed in an internally accepted 'defence of the continent' context which would uniquely apply to these two countries. In this unique and exclusive agreement, the United States would agree to Canada's claim to the NWP existing as Canadian internal waters with the United States having a condition that it can access these same waters. The United States' acceptance of the Canadian claim of the NWP as internal waters would enable the enhanced NORAD Agreement to have jurisdiction over this area, thus its ability to increase its monitoring, surveillance, and protection more so than if this same area was categorized as an international strait. If the NWP was "jointly managed, the security of the Northwest Passage would certainly be enhanced," there could be "a better enforcement of maritime regulations" and "both countries would share

¹⁸¹ Canadian International Council. "Open Canada: A Global Positioning Strategy for a Networked Age." Canadian International Council. 2010. Pg. 60.

¹⁸² Elliot-Meisel, Pg. 217.

operational costs,” thus decreasing each state’s Arctic security costs.¹⁸³ With Canada’s claim to the NWP assured by the United States, its largest detractor to the claim, Canada could institute an access fee for industrial ship access to the NWP. This could prospectively amass “annual revenues of \$2 - 4 billion in fees collected from the ships passing through the Northwest Passage” which Canada could then further allocate to Arctic capabilities or other governmental initiatives regarding the Arctic.¹⁸⁴ This exclusive agreement can also provide the opportunity for Canada and the United States to come to an agreement over the disputed ocean boundaries between Canada’s Yukon Territory and the United States’ State of Alaska.

This solution is described as unorthodox because there would be many political and social ramifications to a Canadian government’s support for this expanded NORAD Agreement. This would be a significant political decision and would most likely require the government to gauge Canadian public opinion. Many Canadians who view their identity as connected with the North and the Arctic may feel that Canada is rejecting their identity in partnering with its neighbour to the South. Many Canadians may also reject this policy because they feel that Canada is giving up its northern sovereignty and independence to the United States. The other political consideration the Government of Canada would have to consider is the reaction of other maritime Arctic states to Canada’s union with the United States over this Arctic area. Many other maritime Arctic states may feel alienated by this union and refuse to co-operate with Canada, which could impair Canada’s overall national interests. Although this policy would be difficult to implement, it should still be considered because it would combine Canadian and

¹⁸³ Lytvynenko, Pg. 13.

¹⁸⁴ Ibid.

American defence and security capabilities in this area of the Arctic which could reduce cost while improving overall defence and security capabilities.

Canada Collaborating with other Maritime Arctic States

The third type of recommendations that would improve Canadian defence and security capabilities in the Arctic is to increase Canada's co-operation with other states. Canada should continue to work in partnership with other states, especially other maritime Arctic states. Doing so will give Canada the opportunity to partake in "cooperation, burden sharing, mutual leveraging and influence, confidence building, situational awareness, and strategic insight."¹⁸⁵ Collaborating with others could also reduce defence and security costs and "serve as force multipliers, maximizing the use of limited resources," so as to boost defence and security capabilities to prevent non-conventional threats to defence and security.¹⁸⁶ Below are some ways Canada can work with other countries to augment Canadian defence and security capabilities.

Information Sharing

To improve defence and security capabilities such as monitoring and surveillance, maritime Arctic states should continue to advocate and participate in information sharing. The Nordic countries, as declared in the *Nordic Cooperation on Foreign and Security Policy*, have agreed to develop a Nordic maritime monitoring system. The Nordic countries have affirmed that this monitoring system, named Barents Watch, must have the ability to be flexible and

¹⁸⁵ Mcfadden, Pg. 57.

¹⁸⁶ Brosnan, Pg. 191.

exchange the information it gathers with other countries.¹⁸⁷ The Nordic countries believe that regularly exchanging information with “Russia on the Barents Sea and the Baltic Sea, with the other Baltic states on the Baltic Sea, and with Canada and the US on the North Atlantic” will put all states in a better position to monitor their defence and security requirements.¹⁸⁸ The sharing of this information will also enhance the information that is already shared in the North Atlantic Coast Guard Forum, where “Canada, Denmark, Iceland, Norway and the US participate.”¹⁸⁹ As the Nordic countries have openly expressed the need for information sharing, so should Canada. Declaring interest in and participating in information sharing will enhance Canada’s defence and security capabilities against non-conventional threats to defence and security.

State Joint Operations

To strengthen Canadian defence and security capabilities Canada should collaborate with other maritime Arctic states by participating with them in joint operations to prevent future non-conventional threats to defence and security. The CAF and the Canadian Coast Guard could participate by accompanying other maritime Arctic states in ‘ride-alongs’ so that the “authority and jurisdiction of two states can be projected at once from one vessel rather than two.”¹⁹⁰ This would have the ultimate ability of preventing those participating in illegal activities from using international borders “as a means of escaping authorities.”¹⁹¹ Canada has already expressed interest in bilateral co-operation with the United States and Norway for stemming

¹⁸⁷ Stoltenberg, Thorvald. Nordic Cooperation on Foreign and Security Policy: Proposals presented to the extraordinary meeting of Nordic foreign ministers in Oslo on 9 February 2009. http://www.mfa.is/media/Frettatilkynning/Nordic_report.pdf pg. 13.

¹⁸⁸ Ibid.

¹⁸⁹ Ibid.

¹⁹⁰ Brosnan, Pg. 191.

¹⁹¹ Ibid.

illegal fishing; however, as different forms of illegal activities grow due to increased accessibility in the Arctic, Canada should consider using joint operations to stop other forms of illegal activities from occurring.¹⁹²

Bilateral State Compromise on Border Disputes

To supplement Canada defence and security capabilities Canada should resolve its outstanding maritime border disputes. Canada should look to the successful co-operation example of Norway and Russia and their disagreement in the Barents Sea. For over 40 years both Norway and Russia “competed for an area in the Barents Sea covering 12,070 square nautical miles of overlapping claims.”¹⁹³ In April 2010, Russian and Norwegian leaders met and came to a compromise that would resolve the issue. In September 2010, the two countries signed a treaty which signalled “maritime delimitation and cooperation in the Barents Sea and Arctic Ocean; it has annexes on fisheries’ matters and transboundary hydrocarbon deposits.”¹⁹⁴ The treaty came into force after acceptance by both parliaments on July 7, 2011.¹⁹⁵ In this circumstance, both countries focused on compromise that would benefit both countries equally as there is a considerable amount of natural resources, including hydrocarbons, in this region. The two countries agreed to “split the disputed part of the Barents Sea into two equally sized areas”.¹⁹⁶ Canada should view the political agreement between Russia and Norway as a best practice model to emulate when it attempts to conclude its own maritime bilateral disputes. Doing so will give Canadian defence and security operators clearly defined roles and

¹⁹² Ibid.

¹⁹³ Haftendorn, Pg. 818.

¹⁹⁴ Haftendorn, Pg. 818-819.

¹⁹⁵ Arctic Forum Foundation - <http://eu-arctic-forum.org/allgemein/delimitation-agreement-a-new-era-in-the-barents-sea-and-the-arctic/> - Accessed 24 Feb, 2014.

¹⁹⁶ BBC News. “Russia and Norway agree deal over oil-rich Barents Sea” Published: 7 June 2011. Accessed 24 Feb, 2014. - <http://www.bbc.co.uk/news/business-13686049>

responsibilities in these contested regions so as to operate more effectively. Failure to do so could present Canadian defence and security challenges and even risk when activity increases. A side benefit to Canada is that just as Russia and Norway benefited economically from the resolution of the disputed regions, so could Canada. Canada could be in a position to reap the rewards of accessing natural resources, which could lead to substantial economic gains should they encourage industry to increase operations.

Developing Multilateral Agreements and Improving their Implementation

Finally, one solution to improving Canadian security in the Arctic would be through the collaboration of multilateral agreements with other states, especially maritime Arctic states. These multilateral agreements could reduce both conventional and non-conventional threats to security, and develop inter-operability so as to reduce tensions and conflict in this area. Agreeing to mutually beneficial agreements, such as the legally-binding agreements on *Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic* and the *Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic*, if done in a positive, mutually-beneficial way which respects state sovereignty and rights, can be effective in enhancing security in the Arctic as it empowers states to act in a unified fashion. Encouraging multilateral agreements will also have the additional positive benefit of state security burden-sharing so as to reduce state defence and security costs. Canada and other states could also re-analyse already agreed upon agreements so as to find additional efficiencies. By finding better ways of implementing defence and security capabilities Canada in collaboration with other states could find additional value to increase overall operational effectiveness. For example, Canada and other Arctic states should continue to improve upon the *Agreement on Cooperation on*

Aeronautical and Maritime Search and Rescue in the Arctic developed in the Arctic Council by creating working groups to review ways in which the agreement can be implemented to the best of its ability. Further analysis of already agreed upon agreements to find efficiencies can serve to enhance Canadian defence and security capabilities.

Conclusion

Over the past decade, interest in the Arctic from both states and the public has grown due to the impact of climate change on the Arctic. The physical changes occurring in the maritime Arctic, such as the melting of ice, will increase activity in the not so distant future. It is clear that this increased traffic through and in the maritime Arctic will create pressure on maritime Arctic states collectively and more specifically will pose additional threats to Canada's defence and security.

Canada will face both conventional and non-conventional threats to defence and security. It is prepared to mitigate ongoing conventional threats, but is not prepared for the new challenges of non-conventional threats to defence and security.

When evaluating Canadian defence and security policy and Canada's current defence and security capabilities, it seems that Canada is prepared to mitigate ongoing conventional threats but is certainly not ready for the new challenges of non-conventional threats to defence and security. The Government of Canada's defence and security operators will require additional

defence and security capabilities to respond successfully to these non-conventional threats to defence and security in the maritime Arctic.

Recommendations presented demonstrate how Canada can improve its defence and security capabilities. The three types of pragmatic recommendations were developing and procuring additional capabilities, modifying governance, and collaborating with other maritime Arctic states. Implementing some of these recommendations could significantly improve Canada's ability to evolve and adapt to the changes occurring in the maritime Arctic. Strengthening Canadian defence and security capabilities will better position Canadian defence and security operators to succeed in the maritime Arctic and mitigate future threats. This will in turn ensure that the Government of Canada can accomplish its overall defence and security mandate of ensuring the safety of Canadians and securing Canada and its national interests in the face of global change.

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