



TROUBLE IN NIFLHEIM?

ELEMENTS OF A NATO ARCTIC STRATEGY

BY

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APPROVAL

The undersigned certify that this thesis meets masters-level standards of research, argumentation, and expression.

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ABSTRACT

NATO needs an Arctic strategy, due to the increased military significance of the Arctic. This study investigates the military significance of the Arctic by examining the Arctic context, and elements conferring military significance to the Arctic, as well as examination of geostrategic projections of the Arctic future and conflict potential. Based on this the ramifications for the NATO alliance are argued and a strategy for a return of the NATO alliance to the Arctic is recommended. The first chapter analyses the context, the Arctic as a regional security complex, the physical changes, lucrative economic opportunities by access to vast natural resources and new shipping lanes in the Arctic, as well as the technical and political challenges. The second chapter argues the military significance, by analysis of four factors: deteriorated NATO-Russia relations, changes in the Arctic environment, technologies enabling access to the Arctic, and increased Russian military presence. The third chapter lays out projections of the future Arctic, by analysis of geostrategic views of the future Arctic and conflict potential. The fourth chapter shows NATO's lack of strategy in the Arctic and declined military capability. A strategy for continued advantage in the Arctic, based on containment and restrained tit-for-tat cooperation with Russia is recommended. This based on three specific elements: geostrategic control, deterrence, and cooperation. The Arctic is changing, and mitigating risk of conflict with Russia is a challenge to the NATO alliance. A new NATO strategy for the Arctic, as argued in this study, can ensure continued advantage and stable relations with Russia.

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Chapter 1

Introduction

We are entering the Age of the Arctic, an era in which Mercator projection maps must give way to polar perspectives in schools, legislative chambers, corporate conference rooms, and military headquarters.

- Gail Osherenko and Oran R. Young, “The Age of the Arctic”, 1989

Strategy is inherently geographical, and that even when other dimensions are examined each is subject to the influence of what fairly can be termed geographical influence.

- Colin S. Gray, “Inescapable Geography”, 1999

In Norse mythology *Niflheim* is the ancient realm of ice, cold, and fog, a contrast to *Muspelheim*, the ancient realm of fire and heat. Both are key to the colorful Norse creation myth, where the first living creature, the giant *Ymir*, is created when ice from *Niflheim* meets heat from *Muspelheim* in the *Ginnungagap*, a primeval void.¹ Snorri Sturluson, Icelander and author of the *Prose Edda*, in *Gylfaginning* writes “It thawed and dripped at the point where the icy rime and the warm winds met. There was a quickening in these flowing drops and life sprang up, taking its force from the power that sent the heat.”² While not creating mythological giants like *Ymir*, the thaw in the Arctic creates opportunities and challenges, some of which could take on giant proportions if not addressed in time. Consequently, the Arctic is the object of inquiry, and the changes are the elements of analysis in this thesis.

¹ Snorri Sturluson, *The Prose Edda: Norse Mythology*, ed. Jesse L. Byock (London: Penguin, 2005), 12–13; John Lindow, *Norse Mythology a Guide to the Gods, Heroes, Rituals, and Beliefs* (New York, NY: Oxford University Press, 2002), 141 and 240–241.

² Excerpt from section 6 “Ginnungagap and the emergence of Ymir”, see Snorri Sturluson, *The Prose Edda*, 13–14.

The changing Arctic is a strategic challenge both to the individual Arctic littoral states and to NATO as an alliance as opportunities and risks persist in a vast and challenging geographical area with major Russian interests. Large hydrocarbon deposits, possible utilization of SLOCs altering costs of world trade, and lucrative fisheries in the Arctic Ocean are great economic opportunities for the Arctic nations. However, the Arctic has unresolved territorial claims and disputes over access to resources, which provides risk. Most significantly, Russia has major national interests in the Arctic: large hydrocarbon deposits, increased trade on the Northern Sea Route, extended access to and use of rivers for transport. In addition, recent events in Ukraine, Crimea, and Georgia, have demonstrated Russian willingness to resort to military force to further national interest and are a reminder of the continued role of military force and realpolitik in global affairs. Although, the Arctic littoral states in NATO have demonstrated an increased national interest in the Arctic, NATO has neither promulgated a policy nor a strategy for the Arctic. Furthermore, NATO capability to operate in the Arctic as an alliance has declined since the end of the Cold War.

Background

Last year I attended Air Command and Staff College, in my search for a relevant issue to study as part of my year-long elective I found the European Arctic of special interest. The scope of my research was on the likely character of an inter-state conflict with Russia in the European Arctic, over the Svalbard archipelago. The emphasis was an operational level analysis of Russian military capability for Anti-Access/Area-Denial warfare, and the likelihood of Russia employing an Anti-Access/Area-Denial strategy against the U.S./NATO in conflict. The result was a research paper, which focused specifically on strategy and capabilities at

the operational level.³ However, I was still intrigued by the Arctic, especially the effects of climate change in the Arctic, and the possibility of increased economic and military significance, and more important geostrategic role, and consequences for the NATO alliance, especially as NATO has been focused on operations outside Europe for a decade. Moreover, as events in early 2014 in Ukraine and Crimea overtook my ACSC research, I was furthermore curious about the deteriorated relations between NATO and Russia, and its effect on the Arctic. Consequently, this thesis was undertaken with the purpose of examining the changes, the economic and military significance of the Arctic, its geostrategic role and risk of conflict, and the consequences to the development of a NATO Arctic strategy, which has been ignored by the alliance.⁴

Research Question

This thesis departs from the operational level focus of my research paper from last year and aims at addressing the strategic level, by focus on an alliance strategy for continued advantage in the Arctic, based on an analysis of the context, herein political and economic significance, analysis of the military significance of the Arctic, and geostrategic projections. Consequently this thesis seeks to answer two primary research questions: First, is the Arctic of military significance? Second, if the Arctic is of military significance, then what are the ramifications for a NATO strategy for the Arctic?

³ Maj. Mikkel N. Behrens, "Taming the Polar Bear" (Research Paper, Air Command and Staff College, 2014).

⁴ Luke Coffey and Daniel Kochis, "NATO Summit 2014: Time to Make Up for Lost Ground in the Arctic," *The Heritage Foundation*, August 21, 2014, <http://www.heritage.org/research/reports/2014/08/nato-summit-2014-time-to-make-up-for-lost-ground-in-the-arctic>.

Limitations

This thesis is focused on the regional level in international relations, specifically the Arctic; aspects of the global international system are only included when relevant to the Arctic. The emphasis is on the five Arctic-littoral states: the United States, Russia, Canada, Denmark, and Norway. The role and influence of non-Arctic great powers and non-Arctic states in the Arctic is consequently not part of the study. Even though, Sweden and Finland are Arctic states, they are not Arctic-littoral states, as they lack direct access to the Arctic Ocean; consequently they are not part of this study. Iceland, while an Arctic-littoral state, is only granted limited reflection as a state in international relations; nevertheless, Iceland is emphasized as a key element in the study related to geostrategic control and NATO alliance strategy. Global inter-governmental organizations are only included where specifically relevant to the Arctic, as for example the United Nation Convention Law Of the Sea. Sub-regional organizations and non-governmental organizations in the Arctic have not been addressed, as they are beyond the scope of the study.

While Buzan and Wæver's theory of regional-security complexes is used in a modified form, their concept of "securitization" is not. This is because this study focuses on a realist view of security, mainly military power and latent power, rather than the broader view inherent in the concept of "securitization" by inclusion of social constructivist ideas. Likewise, though a common element in the literature about the Arctic, cultural factors, the role of environmental concerns, and the indigenous people of the Arctic region are not a part of this study.

Although receding sea ice is a driver of change in the Arctic, the cause is not addressed. This is because of the contentious and politicized nature of the debate about climate change; this study is focused on the effects, and is therefore indifferent about the causes.

Definitions and Assumptions

Due to the dominant role of geography in the study of the Arctic, two primary terms are defined up front: geopolitics and geostrategy. Geopolitics is here defined as “the spatial study and practice of international relations,”⁵ which is relevant in an analysis of the Arctic, where the spatial dimension, geography itself, is the dominant feature of both academic study and practical recommendation of strategy. Geostrategy is used as “the large-scale effects of geography to influence decisions on deployment of forces.”⁶ Moreover, the emphasis in the term geostrategy will be on “the influence of emerging technologies on geography, in essence the practical shrinking of the earth.”⁷ This emphasizes the time-space compressing effects of new technologies on geography, as seen with the advent of the railroad, steam ships, and the aircraft. Those will be used to analyze both the military significance of the Arctic and geostrategic opportunities in chapter three and four. Definition of other key terms, such as the Arctic, strategy, regional security complex, and deterrence are provided where and when relevant in the chapters ahead.

While other perspectives on the nature of the international system can have some utility and be academically stimulating, the fundamental assumption of the nature of the international system in this study is based on the realist school of international relations and laid out in chapter two. Due to the emphasis on the future, the study at hand is based on the assumption that present scientific prognostications about sea ice levels in the Arctic, as laid out in chapter two, are accurate.

⁵ Colin S. Gray, “Inescapable Geography,” in *Geopolitics, Geography, and Strategy*, ed. Colin S. Gray and Geoffrey Sloan (Portland, OR: Frank Cass, 1999), 164.

⁶ Everett C. Dolman, *Astropolitik: Classical Geopolitics in the Space Age*, Cass Series: Strategy and History (Portland, OR: Frank Cass, 2002), 13.

⁷ Dolman, *Astropolitik*, 31.

Preview of Argument

This thesis will answer the research questions by analysis of the Arctic context, the military significance of the Arctic, the geostrategic opportunities and conflict potential, and ramifications for NATO, herein elements of a NATO strategy for the Arctic. The following previews the argument presented in this thesis.

The second chapter lays the foundation and shows the changes in the Arctic political and economic context, herein, challenges and opportunities. First, the Arctic Human Development Report definition of the Arctic is explained. Second, the Arctic is characterized as a sub-complex of a European super-complex, with a structure of balanced bipolarity, through the application of regional theories of international relations. Third, the changes in sea ice levels and prospects of ice free summers within the coming decades are discussed. The challenges and opportunities of natural resources and shipping are argued. Key to both shipping and extraction of natural resources is territorial delimitation – here five territorial disputes are presented. Fourth, the pan-Arctic inter-governmental forums and regimes are examined, followed by an overview of state economic interest in the Arctic. Notably, Russia has major economic interest vested in the Arctic, followed by Norway, Denmark, and Canada, and to a lesser degree the United States. Last, Economic prospects and interest, as well as territorial disputes, indicates divergent state interests in the Arctic, which in combination with weak pan-Arctic inter-governmental forums and regimes is a challenge in itself.

Based on the challenging political and economic context laid out in chapter two, chapter three argues that the Arctic is of increased military significance. This is based on four primary factors: first, the deterioration in relations between Russia and NATO; second, the changes in the Arctic physical environment as laid out in chapter two; third, established and new, maritime and aerospace technologies enabling

access to and operations in the Arctic or utilizing the Arctic as a strategic corridor; fourth, increased Russian military presence in the Arctic.

The fourth chapter lays out the geostrategic opportunities and conflict potential. First, three geostrategic projections of the future Arctic are argued: Russia as a rising sea power, the Arctic as a Rimland, and the Arctic as a strategic crossroad. This is based on application of classical geostrategic theory to two contemporary geostrategic perspectives on the Arctic. Second, management of risk of conflict with Russia in the Arctic is argued as the primary security challenge either as spill-over from conflict in Europe or as in-theatre conflict over territory and rights to resource extraction. Last, four specific conflict areas are explained.

The fifth chapter argues that NATO needs an Arctic strategy, based on the prospects of increased economic and military significance, geostrategic perspectives, and conflict potential. In addition, elements of a NATO strategy for the Arctic are recommended. First, the NATO alliance's lack of strategy is shown and a lack of alliance capability in the Arctic is argued. Second, the ramifications for NATO are argued as a need for a strategic shift in the alliance, a return to the Arctic. Third, elements of a NATO strategy for continued advantage in the Arctic is argued. The strategic approach recommended is military containment combined with restrained tit-for-tat strategy for cooperation. This is based on three recommended elements, which are laid out and argued separately: deterrence, geostrategic control, and cooperation with Russia. Last, in order to implement the recommended strategy for continued advantage, five steps of NATO action are recommended.

The final conclusion answers the research questions, summarizes the main findings and restates the primary conclusions, and provides a perspective on the implications.

Chapter 2

Arctic Context: change, opportunities, challenges, and interests.

The Arctic and our northern regions contain colossal wealth.

- Josef Stalin, 1932

The United States of America, Norway, Denmark and Canada are conducting a united and coordinated policy of barring Russia from the riches of the shelf. It is quite obvious that much of this doesn't coincide with economic, geopolitical and defense interests of Russia, and constitutes a systemic threat to its national security.

- Russian Security Council Secretary Nikolai Patrushev, 2009

The Arctic is changing. With this change comes economic opportunities and challenges in an environment of divergent state interests, territorial disputes, and weak intergovernmental forums and regimes. The following defines and examines the Arctic context: the physical definition of the Arctic, the international relations perspective of the Arctic as a region, environmental change, mainly receding sea ice; the opportunities and challenges in natural resources and shipping, and the divergent state interest of the littoral Arctic states, herein the two great powers Russia and the U.S.; explores the unresolved territorial disputes and inter-governmental forums and regimes.

Definition of the Arctic

The Arctic has many definitions and any definition is a compromise. The etymological origin of the word Arctic in English is Greek, *arktikos*, from the word *arktos* “bear”, with reference to the northern star constellation of the great bear.¹ The most common definition of the Arctic is based on the Arctic Circle, 66°32'N, which

¹ Joseph T. Shipley, *Dictionary of Word Origins* (New York, NY: Philosophical Library, 1945), 26–27.

demarcates the southernmost line of the occurrence of 24 hour daylight in the summer and 24 hour darkness in the winter.² Another common definition is the 10°C isotherm, which delimits where the average temperature in July is at, or below, 10°C.³ However, the use of the Arctic Circle is a spherical demarcation of the Arctic, which does not take the geophysical surface of the earth and established borders into account. The 10°C isotherm is variable, due to differences in climate and variance in temperature, and does not take established geographical borders into account. The focus of this thesis is geopolitical, therefore the compromise definition should entail a clear geographical and political demarcation. The Arctic Monitoring and Assessment Program (AMAP) definition, by a sub-committee of the Arctic council, takes both these elements into account. This definition is further refined by the Arctic Human Development Report (AHDR) definition. This is a further development of the AMAP definition and includes geographical regions considered to be Arctic by their nations. The AHDR definition from 2004 will be used in this thesis (see Figure 1 below):

All of Alaska, Canada north of 60°N together with northern Quebec and Labrador, all of Greenland, the Faroe Islands, and Iceland, and the northernmost counties of Norway, Sweden and Finland ... [in Russia] the Murmansk Oblast, the Nenets, Yamalo-Nenets, Tai myr, and Chukotka autonomous okrugs, Vorkuta City in the Komi Republic, Norilsk and Igarka in Krasnoyarsky Kray, and those parts of the Sakha Republic whose boundaries lie closest to the Arctic Circle.⁴

² Christian Le Mièrre, *Arctic Opening: Insecurity and Opportunity*, Adelphi Series, no. 440 (Abingdon: Routledge for the International Institute for Strategic Studies, 2013), 11–12.

³ Le Mièrre, *Arctic Opening*, 12.

⁴ Niels Einarsson and Oran R. Young, eds., *Arctic Human Development Report* (Akureyri: Stefansson Arctic Institute, 2004), 17–18, <http://www.svs.is/en/10-all-languages-content/28-ahdr-chapters-english>.



Figure 1: AHDR Definition of the Arctic

(Source: Adapted from Arctic portal map, displaying AHDR dataset “Arctic Portal - Interactive Maps,” Arctic Portal (<http://www.arcticportal.org/Arctic Portal maps and data>); used with permission.)

After the definition of the Arctic, the Arctic as a region in international relations is explored.

International Relations Perspective of the Arctic as a Region

With the Arctic defined as a physical region, the regional level of analysis is continued by a look at the Arctic as a regional security complex, herein, a brief analysis of structure and polarity, which will be used throughout this thesis. The theoretical basis is from Buzan and Wæver’s *Regions and Powers: The Structure of International Security*,

modified and supplemented with elements from Robert Stewart-Ingersoll and Derrick Frazier;s *Regional Powers and Security Orders*.⁵

The Arctic as a region is analyzed in four steps: first, definition of regional security complex, and fundamental assumptions; second, the Arctic as a regional security complex; third, the structure of the Arctic as a regional security complex; fourth, the combined perspective is summarized and alternatives discussed.

A regional security complex is here defined as “a group of states whose primary security concerns link together sufficiently closely that their national securities cannot reasonably be considered apart from one another.”⁶ The fundamental assumptions about the nature of the international system and states are: the international system is anarchic, states are primarily concerned with survival and cannot be certain of the intentions of other states, and they therefore seek to maximize relative power in order to survive by increasing their own security.⁷

Second, the international relations perspective used here is from the Arctic as a regional security sub-complex, within a European super-complex. A sub-complex is a regional security complex within a larger regional security complex. Although, the sub-complex has specific security interdependencies, these are widely dependent on the security interdependencies of the larger regional security complex.⁸ Here the

⁵ Regional Security Complex Theory has strong focus on the role of geography as a central variable, which is in line with the geopolitical focus of this thesis, see Barry Buzan and Ole Wæver, *Regions and Powers: The Structure of International Security*, Cambridge Studies in International Relations 91 (New York, NY: Cambridge University Press, 2003), 69–70; Regional Powers and Security Frameworks are a solid supplement, as it emphasizes the internal make-up of regional security complexes in depth; whereas Buzan and Wæver emphasizes the delimitation of regional security complexes. See, Robert Stewart-Ingersoll and Derrick Fraizer, *Regional Powers and Security Orders: A Theoretical Framework*, Routledge Global Security Studies (New York, NY: Routledge, 2013).

⁶ This definition is the original by Buzan & Wæver from 1998, which lacks the later addition of the concept of “securitization” which is beyond the scope of this thesis. See Buzan and Wæver, *Regions and Powers*, 44.

⁷ John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York, NY: W.W. Norton & Co, 2014), 30–36.

⁸ Buzan and Wæver, *Regions and Powers*, 51–52.

Arctic is seen as a part of a European super-complex. The Arctic sub-complex is here geographically delimited by the AHDR definition of the Arctic' as laid out in the previous section. Therefore, the Arctic sub-complex includes the following states: Canada, the U.S., Denmark, Norway, Russia, Iceland, Sweden, and Finland. This is enabled by modifying Buzan and Wæver's ideas with Ingersoll and Fraizer's concept that states can be members of more than one regional security complex to which they are geographically contiguous; in contrast to Buzan and Wæver's original exclusive membership of only one regional security complex.⁹ Accordingly, Canada and the U.S. are members of both a North American regional security complex and, in the regions defined by the AHDR definition, members of an Arctic sub-complex in a European super-complex. As a result, the European super-complex is extended to include all of the Arctic sub-complex, defined by the AHDR definition of the Arctic. In 2003, Buzan and Wæver argued that a distinct European regional security complex and a post-Soviet regional security complex existed. However, these have merged into a European super-complex, due to increased security interdependency between Europe and Russia since 2014. This is because of NATO and EU enlargement and Russian pushback, particularly by deteriorated NATO-Russia relations over unrest in Ukraine and Russian annexation of Crimea (for further details refer to chapter four). Notably, Buzan and Wæver predicted a possible merger of the two regional security complexes if security interdependence between Europe and Russia increased.¹⁰ In addition, they predicted determined Russian reactions to NATO and EU enlargement, due to special interest in Ukraine, herein, the inability of Russia to cede control/influence in its near abroad, especially in Ukraine and Crimea.¹¹

⁹ Stewart-Ingersoll and Fraizer, *Regional Powers and Security Orders*, 46–47; For the opposite argument, exclusive membership of RSCs, see: Buzan and Wæver, *Regions and Powers*, 48–49.

¹⁰ Buzan and Wæver, *Regions and Powers*, 438.

¹¹ Buzan and Wæver, *Regions and Powers*, 416–419 and 438.

Third, the perspective on the structure of the Arctic regional security sub-complex is as a balanced bi-polarity between the U.S. as a superpower, supported by NATO allies, and Russia, a regional great power. Polarity is here determined by comparison of relative power by select application of the metrics used by Ingersoll and Fraizer. John J. Mearsheimer, political scientist and offensive realist *par excellence*, divides power into military power and latent power, the potential power which can be translated in to military power.¹² Military power is the more important of the two, because it is the *effective* power, while latent power takes time to convert to military power.¹³ According to the father of structural realism, Kenneth N. Waltz “In international politics force serves, not only as the ultima ratio, but indeed as the first and constant one.”¹⁴ In order to compare relative power in the Arctic sub-complex, the Composite Index of National Capability (CINC) is used. The index is an estimate of national power by combining six variables: total population, urban population, military personnel, military expenditures, iron and steel production, and energy consumption.¹⁵ While many more relevant variables can be used to assess relative power, the CINC is here considered an acceptable heuristic for relative power, because it considers both military power (military personnel and military expenditures) and latent power (total population, urban population, iron and steel production, and energy consumption) indicators. The

¹² Mearsheimer, *The Tragedy of Great Power Politics*, 55–60.

¹³ Mearsheimer, *The Tragedy of Great Power Politics*, 55–60.

¹⁴ Kenneth N Waltz, *Theory of International Politics* (Long Grove, IL: Waveland Press, 2010), 113.

¹⁵ Use of the Composite Index of National Capability based on a multi-variable set of power indicators in: Stewart-Ingersoll and Fraizer, *Regional Powers and Security Orders*, 54–56; “National Material Capabilities (v4.0) — Cow,” *The Correlates of War Project*, accessed March 20, 2015, <http://www.correlatesofwar.org/data-sets/national-material-capabilities>; For detailed description of the dataset see: David J. Singer, Stuart Bremer, and John Stuckey, “Capability Distribution, Uncertainty, and Major Power War, 1820–1965,” in *Peace, War, and Numbers*, ed. Bruce M. Russett (Beverly Hills, CA: SAGE Publications, Inc, 1972), 19–48; and, David J. Singer, “Reconstructing the Correlates of War Dataset on Material Capabilities of States, 1816–1985,” *International Interactions* 14 (1987): 115–132.

introduction of more variables is beyond the desired level of detail and is estimated not to change the vast primacy of relative power by the U.S. and Russia in the Arctic.¹⁶

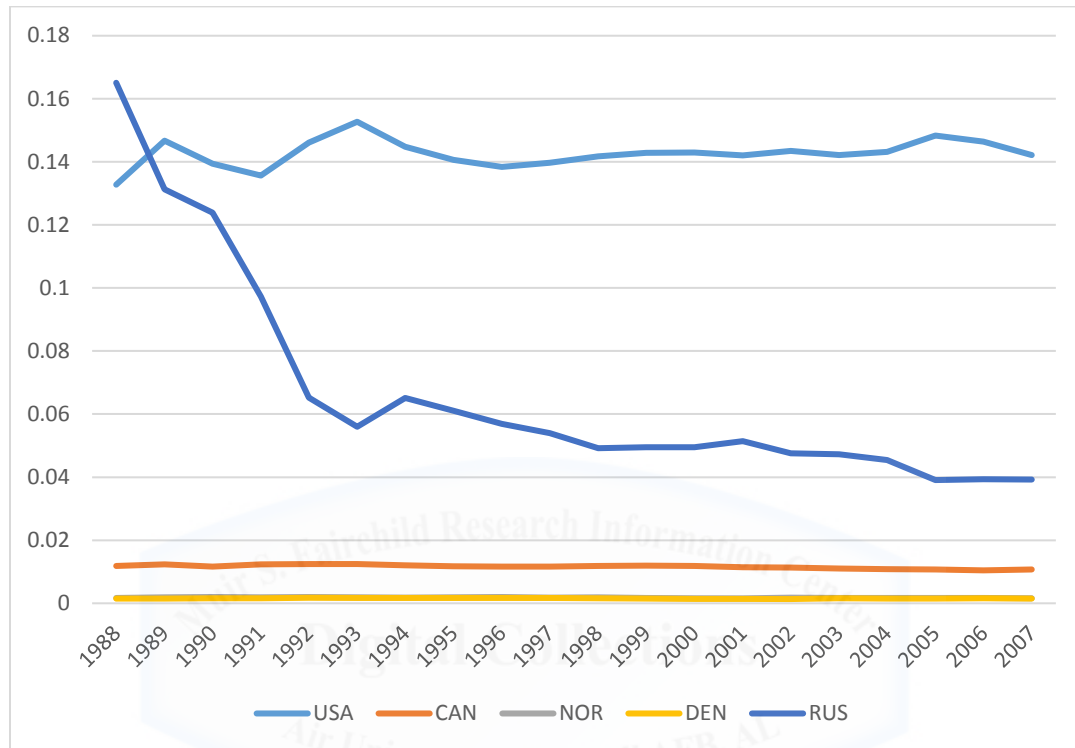


Figure 2: Composite Index of National Capability 1989-2007

(Source: figure based on data from CINC dataset ver. 4.0)

While any characteristics of states as superpowers and great powers are subject to much debate, the terms will be used here as they are deemed appropriate. Three aspects can be deduced about the distribution of relative power among the Arctic littoral states from the developments identified by CINC from 1989 to 2007 displayed in Figure 2. Starting with the U.S., who has been the relatively most powerful state of the Arctic littoral states since the demise of the USSR in 1991, this is indicated in the CINC by a constant very high level of power

¹⁶ For other variables to estimate relative power see: Stewart-Ingersoll and Fraizer, *Regional Powers and Security Orders*, 52–60.

relative to others from 1991 onwards. According to Buzan and Wæver, the U.S. has been the only superpower since the demise of the USSR, which the development in relative power in the CINC supports.¹⁷ Next is Russia, which has declined drastically since the demise of the USSR, yet continued to be relatively more powerful than the rest of the Arctic littoral states, except the U.S. This is in consonance with Buzan and Wæver's characteristic of Russia as having declined from superpower status to the role of great power.¹⁸ Finally, the presence of a superpower, the U.S., and a great power, Russia, indicates bi-polarity in the regional security complex, this is supported by the CINC of both parties, as they are vastly more powerful than Canada, Denmark, and Norway.

The character of the bi-polarity is balanced. This is because, neither the U.S., despite vast relative power, nor Russia presently dominates the Arctic sub-complex. This is due to two factors. The first factor is that power decreases over distance, due to the difficulty of projecting and sustaining power over great distances against other great powers.¹⁹ While the U.S. has unprecedented relative power, the distance from the continental U.S. and the vast landmass of Russia in the Arctic decreases U.S. power over distance in relation to Russia. The second factor is the vast nuclear arsenals of both Russia and the U.S., which prevents the U.S. from dominating a great power like Russia, and prevents Russia from dominating the U.S. Consequently, the bi-polarity is balanced between the U.S. and Russia in the Arctic sub-complex. The minor powers Canada, Denmark, and Norway, are allied with the U.S. in NATO, thereby balancing Russia's relative power in the Arctic sub-complex; which is as expected in a bi-polar balance of power, as minor states rarely can avoid alignment with one of the major powers.²⁰

¹⁷ Buzan and Wæver, *Regions and Powers*, 34–35.

¹⁸ Buzan and Wæver, *Regions and Powers*, 35–37.

¹⁹ Mearsheimer, *The Tragedy of Great Power Politics*, 364.

²⁰ Mearsheimer, *The Tragedy of Great Power Politics*, 156–157 Mearsheimer succinctly lays out when and how states balance in bi-polarity.

In sum, the Arctic is a sub-complex in a European super-complex. The structure is balanced bi-polarity between the U.S., a superpower, and Russia, a great power; with three minor powers, Canada, Denmark and Norway allied with the U.S. in NATO balancing Russia. While, this perspective of the Arctic region succinctly reflects present security interdependence with the European super-complex, this does not rule out that in the distant future the Arctic could become a regional security complex of its own. However, this seems less likely because Russia, Denmark, and Norway are geographically located in a European security complex, and therefore their security interests can rarely be disaggregated from security interdependencies in Europe. Moreover, the European security complex is penetrated by the U.S. in close security alignments with European powers in NATO.²¹ Thus, disaggregating Arctic security from European security is hard to envision, as it would entail drastic changes in the NATO alliance and posture of the U.S. in relation to security in Europe. After examination of international relations in the Arctic as a region, receding sea ice and predictions of an ice free Arctic Ocean are explored next.

The Changing Arctic

The Arctic is changing. Sea ice coverage of the Arctic Ocean is receding; there continues to be a downward trend, since sea ice began to be recorded by satellites in 1979. Further supported by a number of record lows in the last decade. According to the National Snow and Ice Data Center, the average decline per decade in minimum sea ice coverage has been 3.4%.²² Notably, the latest record low in minimum extent of sea ice was in 2012, with a coverage 45 percent below the 1979-2010

²¹ Buzan and Wæver, *Regions and Powers*, 46–47.

²² “December Ends, 2014 in Review | Arctic Sea Ice News and Analysis,” accessed January 14, 2015, <http://nsidc.org/arcticseaicenews/2015/01/december-ends/>.

average.²³ Although closer to the mean, the 2014 minimum sea ice extent was still 19 percent below the average, which is the sixth lowest minimum sea ice coverage since 1979.²⁴

The receding Arctic sea ice has spurred interest in the underlying causes in order to prognosticate future Arctic sea ice extent, especially if, or when, ice free summers in the Arctic Ocean are likely. What causes the Arctic sea ice to recede is a contentious subject and scientists are undecided, especially on the influence of human activity. This dispute is beyond the scope of this thesis. But reduced sea ice extent and ice free summers in the Arctic are not. According to the U.S. National Oceanic and Atmospheric Administration, the question is not *if* the Arctic will have ice free summers in the future, but *when*. In a 2013 study of the three main models of prognostication of Arctic sea ice, Overland and Wang found that the Arctic Ocean could experience ice free summers as early as 2020, 2030, and 2040 dependent on the method of prognostication.²⁵ However, they were unable to choose one model over the other, as each had strengths and weaknesses, and all were attached with uncertainties and based on estimates.²⁶ In *Global Trends 2030*, the U.S. National Intelligence Council uses estimates of ice free summers in the Arctic Ocean in 2030-2050 in their predictions of likely future strategic environments in 2030.²⁷ Thus, the Arctic Ocean could experience ice free summers within the next four decades.

²³ “Arctic Sea Ice Reaches Minimum Extent for 2014 | Arctic Sea Ice News and Analysis,” accessed January 14, 2015, <http://nsidc.org/arcticseaicenews/2014/09/arctic-minimum-reached/>.

²⁴ “Arctic Sea Ice Reaches Minimum Extent for 2014 | Arctic Sea Ice News and Analysis.”

²⁵ James E. Overland and Muyin Wang, “When Will the Summer Arctic Be Nearly Sea Ice Free?,” *Geophysical Research Letters* 40, no. 10 (2013): 2097–2101.

²⁶ Overland and Wang, “When Will the Summer Arctic Be Nearly Sea Ice Free?,” 2097–2101.

²⁷ National Intelligence Council (U.S.), *Global Trends 2030: Alternative Worlds* (December, 2012), 31 and 65.

However, Arctic sea ice is a multifaceted phenomenon. Sea ice coverage and ice thickness (“ice age”) depend on the yearly fluctuation, sea and air temperatures, cloud coverage, wind patterns, sea currents, and the combined effect of reduced sea ice and increased sea surface, which absorbs more energy than ice (ice-albedo feedback loop). So, even though ice free summers are likely within the coming decades, there will still be sea ice and yearly fluctuation in ice coverage, but there will be less ice and the ice will be thinner (“younger ice”).

Ice free summers, in combination with thinner sea ice, is essential for access to, and use of, the Arctic Ocean, which presents great opportunities and challenges. Less ice coverage in general will make the Arctic Ocean accessible to surface vessels, both military and commercial, and enable off-shore resource extraction. On-shore industries and resource extraction will benefit from increased access to sea transport and ease of some operations due to milder weather. Thinner sea ice is easier to break for icebreakers and polar-class commercial vessels than thicker multi-year ice, thereby enabling increased use of the Arctic Ocean for surface vessels even in periods with some sea ice coverage.

However, receding sea ice and milder climate comes with challenges. Less sea ice will increase adverse weather. Stormier weather and the continued cold weather can cause dangerous icing conditions on any vessel, this will challenge surface vessel operations in the Arctic Ocean.²⁸ On-shore, a milder climate will thaw the permafrost, which drastically changes the ground and soil on which the present industrial and urban structures, power lines, pipelines, railroads, and ice roads have been built.²⁹ Thus, if the permafrost thaws it necessitates great investments in infrastructure in the Arctic to mitigate negative effects of

²⁸ Charles Emmerson, *The Future History of the Arctic* (New York, NY: PublicAffairs, 2010), 162.

²⁹ Marlène Laruelle, *Russia’s Arctic Strategies and the Future of the Far North* (Armonk, New York: M.E. Sharpe, Inc., 2014), 80–81.

a warmer climate. With these challenges in mind, the Arctic holds great prospects due to receding sea ice and ice free summers within the coming decades. One of the major economic prospects and causes of interests in the Arctic is natural resources, which is examined next.

Natural Resources – Opportunities and Challenges

The Arctic is very rich in resources, this has great economic opportunities as well as challenges. Both non-renewable resources, such as hydrocarbons and metals/minerals, and renewable resources, such as fisheries, are plentiful in the Arctic. Of the non-renewable resources, oil and gas hold the most lucrative economic prospects, due to the size of the possible deposits. According to the 2008 U.S. Geological Survey (USGS), the Arctic is projected to hold 13% of the world's undiscovered oil, and up to 30% of the undiscovered gas; which amounts to 90 billion barrels of oil 1,669 trillion cubic feet of gas, and 44 billion barrels of natural gas liquids.³⁰ Hydrocarbon riches in the Arctic is no new discovery, oil and gas fields in Russia and Alaska have been in production since the Second World War. However, while the large existing oil and gas fields, primarily in Russia and Alaska, are on-shore, the future of oil and gas extraction is off-shore. According to the 2008 USGS 84 % of the projected resources are offshore.³¹

Oil and gas production in the Arctic is challenging, especially off-shore operations, due to primarily four reasons. First, due to the technical challenges of off-shore operations in the Arctic, primarily sea depth and climate, oil and gas fields take a very long time from exploration to actual production. For example, one of the largest gas field in the world, the Russian Shtokman off-shore field in the Barents Sea, although explored in 1988, has not yet commenced gas

³⁰ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 136.

³¹ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 136.

production.³² Moreover, the Shtokman field is 370 miles off-shore, and the sea is 1100 feet deep, in an area with temperatures down to -35°C.³³ Therefore a combination of surface and seabed infrastructure for extraction and a pipeline connecting the field to the shore are necessary.³⁴ Second, oil and gas production in the Arctic is relatively costly, compared to other places. For example, the International Energy Agency has estimated that Arctic production costs \$40 to \$100 per barrel, whereas production in the Middle East costs \$10 to \$40 per barrel in comparison.³⁵ According to Robert W. Baird Equity Research North American fracking/shale oil has a break-even production cost of \$53 to \$93 per barrel.³⁶ Third, while development and investment in the fields is a challenge in itself, transport of the resource either for refining and/or to the international market is a challenge due to distance and sea ice. Fourth, unresolved territorial disputes, for example in the sea around Svalbard, complicates investment as the rights to extract resources on the seabed has not been adequately resolved. Nevertheless, 90-95% of the total projected hydrocarbon resources are within already demarcated Extended Economic Zones (EEZ).³⁷ Therefore, it is not an issue, as the resources belongs to whoever has the EEZ.

Although challenging, receding sea ice and technology will enable future resource extraction and likely lower the cost of exploiting the off-shore hydrocarbon resources. Receding sea ice, although not without challenges, will make ice easier to break as it will be thinner, in addition make the area generally more accessible to surface vessels. Moreover, icebreaking technologies, ice strengthening of platforms and ships, will

³² Le Mièrre, *Arctic Opening*, 52.

³³ Alun M. Anderson, *After the Ice: Life, Death, and Geopolitics in the New Arctic* (New York, NY: Smithsonian Books, 2009), 204.

³⁴ Anderson, *After the Ice*, 204–208.

³⁵ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 138.

³⁶ “Breakeven Oil Prices for U.S. Shale: Analyst Estimates,” *Reuters*, October 23, 2014, <http://www.reuters.com/article/2014/10/23/idUSL3N0SH5N220141023>.

³⁷ Le Mièrre, *Arctic Opening*, 54–55.

reduce the challenge of the remaining sea ice and reduce challenges to transportation and infrastructure, even under present conditions. For example, the Prirazlomnoye oil rig which commenced production in the Pechora Sea in December 2013 as the first commercial off-shore oil field in the Arctic, has been constructed with a special ice-resistant and reinforced structure to mitigate the harsh climate.³⁸ Furthermore, experiences with Arctic off-shore operations from the first large commercial Arctic off-shore oil and gas fields, such as Shtokman and Prirazlomnoye, will likely reduce costs as now proven technologies can be reapplied in new projects, lowering research and development costs.

In addition to hydrocarbons, the Arctic holds vast mineral resources and large deposits of rare earth elements, these lucrative extractive prospects add to the economic interest in the Arctic region. Conventional minerals, nickel, zinc, gold, uranium, diamonds, palladium, tin, copper, platinum and others are already mined in the Arctic; moreover, further deposits are projected. The Norilsk Mining Complex in the Russian Arctic is the world's largest nickel and palladium mining industry.³⁹ The world's largest zinc mine is located at Red Dog, Alaska, above the Arctic Circle.⁴⁰ In addition, some estimates of the world's reserves hold that the Arctic contains 90% of the world's nickel and cobalt, 60% of its copper, and 96% of its platinum.⁴¹ In addition to conventional mineral deposits, the Arctic is rich in rare earth elements, which, due to their rarity and importance to modern defense industry, are a strategic resource. This is a group of 17 rare-earth oxides essential to modern high-tech industries for production of consumer electronics

³⁸ "Prirazlomnoye Oil Field," accessed January 18, 2015, <http://www.gazprom.com/about/production/projects/deposits/pnm/>.

³⁹ Lawson W. Brigham, "Afterword: Think Again - The Arctic," in *The Fast-Changing Arctic*, Northern Lights (Calgary, AB: University of Calgary Press, 2013), 371.

⁴⁰ James Kraska, "The New Arctic Geography and U.S. Strategy," in *Arctic Security in an Age of Climate Change*, ed. James Kraska (New York, NY: Cambridge University Press, 2013), 262.

⁴¹ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 152.

and green energy products, e.g. smartphones, computers, batteries, and hybrid cars, and for key components of modern military equipment, such as missiles and radars.⁴² In combination with China's near monopoly on rare metals production, this has caused great interest in rare-earth deposits elsewhere. For example, in 2009 China was the world's largest producer, with 95% of the production and 36% of the reserves.⁴³ Although not in production, large Arctic deposits of rare earth elements holds great prospects for future extraction and mitigation of Chinese monopoly on this strategic resource. Major deposits of rare-earth elements in the Arctic are found in Thor Lake and Strange Lake in Canada; Kvanefjeld in Greenland; Lovozero mine near Murmansk; and Tomtor deposits in Yakutia.⁴⁴

Although not mined off-shore, the economic prospects of mineral and rare-earth element extraction, in areas without sufficient road or rail connection, is dependent on sea transport in order to transport the resources from remote mining areas to processing industries or the international market. As for hydrocarbons, surface transport of these resources will be enabled by the opening of the Arctic Ocean, due to receding sea ice. In addition, icebreaker technologies have already been used to enhance transport of the mined resources. For example, the Norilsk mining complex operates a fleet of modern icebreaking ore carriers capable of independent operations in the Arctic breaking up to 1.5 meters of ice, which is sufficient to ensure winter operations.⁴⁵ This saves 30% of the cost of normal icebreaker operations through ice and enables uninterrupted flow of ore from Norilsk.⁴⁶

⁴² Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 153.

⁴³ Le Mièrre, *Arctic Opening*, 57–58.

⁴⁴ Le Mièrre, *Arctic Opening*, 57–60; Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 154.

⁴⁵ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 184–186.

⁴⁶ Anderson, *After the Ice*, 213–214.

Although non-renewal resources hold the greatest economic prospects, the Arctic is rich in renewable resources such as fisheries, although not at a scale comparable to the projected riches in hydrocarbons, minerals, and rare-earth elements. Arctic fisheries provides 5 % of the world's fish.⁴⁷ For example, the Barents Sea and the Bering Sea have very rich fisheries and produce half of the consumed fish in the U.S. and Europe.⁴⁸ Moreover, according to *the Economist*, the changes in the Arctic climate are likely to increase the cod population in the Arctic due to the growth of phytoplankton in the warmer sea, thereby improving fisheries and economic prospects.⁴⁹ However, the same process is likely to affect the whale and seal populations negatively, as these species are less adaptable than cod.⁵⁰

A last common challenge to extractive industries in the Arctic is the volatility of commodity prices. Any business involving commodities, such as hydrocarbons, minerals/rare-earth elements, and fishing, is sensitive to world market prices. Extractive industries can rapidly become unprofitable and investment opportunities disappear, if the cost of extraction and transport to the world market exceeds the world market price of the commodity offered or invested in. An example of this was the interest in Arctic hydrocarbon resources in the late 1970s and early 1980s, due to the oil crisis in 1973, and subsequently soaring oil prices.⁵¹ However, interest and production dropped drastically when oil prices dropped 50% in 1985-1986.⁵² Nevertheless, interest and production recovered as oil prices reached new heights in 2008.⁵³

⁴⁷ Le Mièrre, *Arctic Opening*, 60.

⁴⁸ Anderson, *After the Ice*, 173.

⁴⁹ "The Arctic Ocean: Awakening," *The Economist*, February 14, 2015, <http://www.economist.com/news/science-and-technology/21643059-earths-northernmost-sea-stirring-consequences-are-both-good-and>.

⁵⁰ "The Arctic Ocean: Awakening."

⁵¹ Emmerson, *The Future History of the Arctic*, 183–186.

⁵² Emmerson, *The Future History of the Arctic*, 186–188.

⁵³ Emmerson, *The Future History of the Arctic*, 187–188.

Shipping – Opportunities and Challenges

After examination of resource riches in the Arctic, the second major economic prospect, shipping is examined. The Arctic Ocean holds economic prospects for shipping enabled by receding sea ice and developments in icebreaking technology; however, the economic prospects are not without challenges. The Arctic Ocean connects the North Atlantic and the North Pacific; this holds great economic prospects for the shipping industry as trans-Arctic shipping routes in the Arctic Ocean connect Europe and the North American east coast to northeast Asia directly, rather than through the straits of Malacca and the Suez or via the Pacific through the Panama Canal. Trans-Arctic sea routes would shorten the time and distance, as well as reduce dependency on the Strait of Malacca, the Suez Canal, and the Panama Canal. However, challenges have to be mitigated to fully unlock the commercial potential.

Notwithstanding noteworthy trans-Arctic shipping achievements enabled by low sea ice coverage, shipping in the Arctic is presently primarily regional. In 2013, the first containership transited the Northern Sea Route and the first bulk freighter transited the North West Passage.⁵⁴ Yet, the bulk of present shipping is regional shipping, primarily in the Russian Arctic utilizing the Northern Sea Route as an internal mode of transportation and for transport of resources to European destinations.⁵⁵ For example, the route from Murmansk to

⁵⁴ “First Container Ship on Northern Sea Route,” *Barentsobserver*, accessed January 25, 2015, <http://barentsobserver.com/en/arctic/2013/08/first-container-ship-northern-sea-route-21-08>; John McGarrity and Henning Gloystein, “Big Freighter Traverses Northwest Passage for 1st Time,” *Reuters*, September 27, 2013, <http://www.reuters.com/article/2013/09/27/us-shipping-coal-arctic-idUSBRE98Q0K720130927>.

⁵⁵ Laruelle, *Russia’s Arctic Strategies and the Future of the Far North*, 174–183.

Dudinka has been kept open all year round since 1978, thereby enabling regional shipping.⁵⁶

Nevertheless, as argued earlier the Arctic environment is changing in the coming decades; receding sea ice and icebreaking technologies will enable increased use of the Arctic Ocean for trans-Arctic shipping as summers becomes increasingly ice free and the remaining sea ice is younger and easier to break. With reduced ice coverage, further enabled by icebreaking technologies extending the shipping season, the Arctic Ocean has three potential key trans-Arctic shipping routes: the Northern Sea Route along the north coast of Russia, the North-West Passage in Canada, and the Trans-Polar sea route following a great circle over the geographical North Pole, see Figure 3 below.



⁵⁶ Willy Østreng, "Shipping and Resources in the Arctic Ocean: A Hemispheric Perspective," in *Arctic Yearbook 2012*, ed. Lassi Heinenen (Akureyri, Island: Northern Research Forum, 2012), 253–254, <http://www.arcticyearbook.com>.

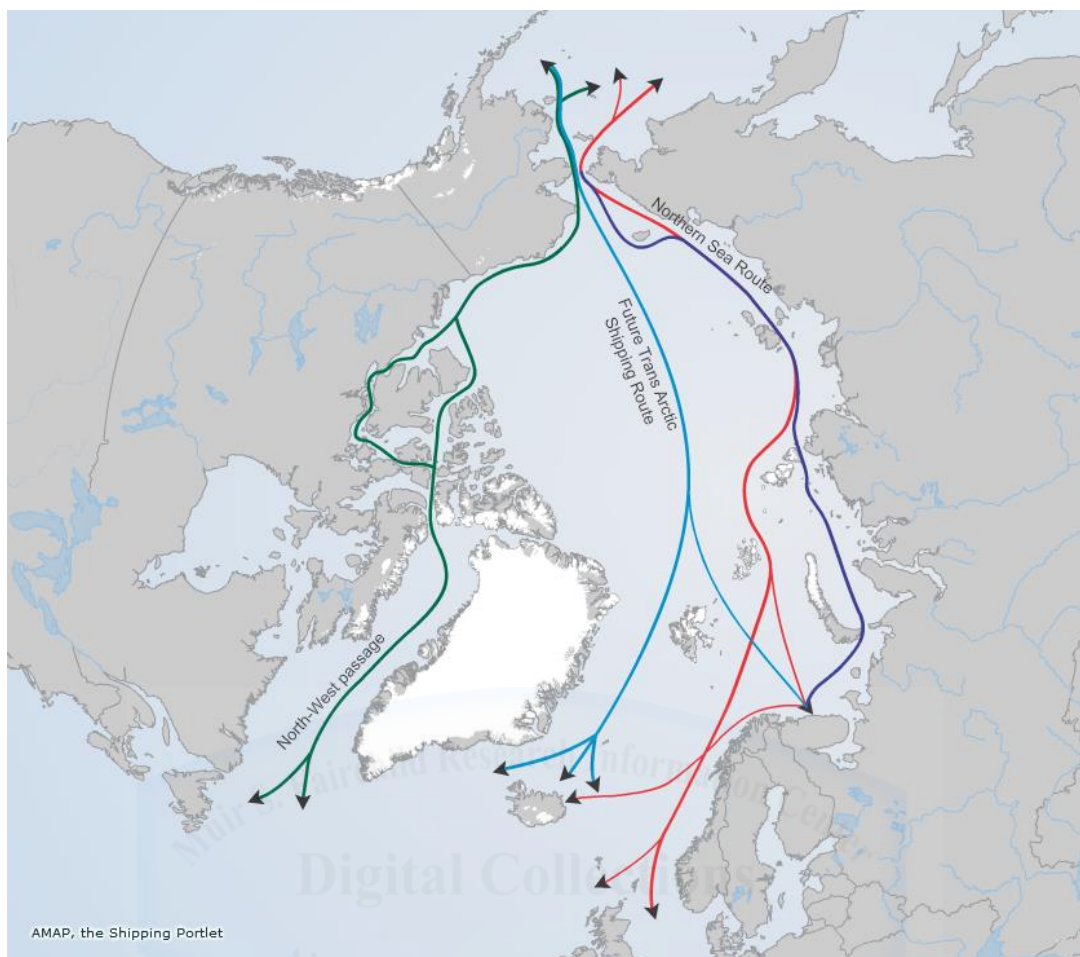


Figure 3: Arctic Sea Routes

(Source: adapted from Arctic Portal map with Arctic sea route dataset “Arctic Portal - Interactive Maps,” *Arctic Portal* (<http://www.arcticportal.org/>); used with permission.)

The economic prospect of trans-arctic shipping is based on two major benefits. First, trans-Arctic shipping routes are shorter, on some destinations, than the traditional sea routes from northeast Asia to the North American east coast and Europe. Some estimates project that use of the trans-Arctic route to and from northeast Asia to Europe could save 20-40% of the distance compared to traditional southern sea routes.⁵⁷ However, the trans-Arctic routes are only shorter for Asian ports North of Hong Kong.⁵⁸ For example, Yokohama-Rotterdam is 3387 NM shorter via

⁵⁷ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 174.

⁵⁸ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 174.

the Northern Sea Route than through Suez; yet, Hong Kong-Rotterdam is 551 NM shorter via Suez. For destinations on the North American east coast, Halifax-Yokohama is 3466 NM shorter via the Northern Sea Route than through Suez, and 961 NM shorter than the Panama Canal. See Table 1 below for comparison of distances on select destinations.

Table 1: Selected Shipping Distances in Comparison

	Distance/NM			
	Shanghai, China	Busan, S. Korea	Hong Kong, China	Yokohama, Japan
Rotterdam via Suez	9,612	9,907	8,859	11,212
Rotterdam via NSR	8,865	8,490	9,410	7,825
Halifax via Panama	10,904	10,441	11,533	10,020
Halifax via Suez	11,818	12,239	11,191	12,517
Halifax via NSR	10,091	9,716	10,636	9,051

(Source: Adapted from Ministry for Foreign Affairs Iceland, North Meets North: Navigation and the Future of the Arctic, Technical Report (Iceland: Icelandic Ministry of Foreign Affairs, 2006), http://www.mfa.is/media/Utgafa/North_Meets_North_netutg.pdf)

Shorter routes equals reduced costs; less distance travelled directly translates to reduced fuel expenditure, and less days at sea saves running costs of ships and crews. For example, in 2009 the Beluga Shipping Group used the Northern Sea Route for two transports from South Korea to Arkhangelsk, Russia with final destination in Nigeria.⁵⁹ In each case the distance was 3,000 NM shorter than the route through Suez, saving an estimated \$100,000 on fuel and \$20,000 per day the transport was shortened, an estimated total saving of \$300,000 per transport by using the Northern Sea Route vs. the route through Suez as a direct consequence of shorter distance and fewer days travelled.⁶⁰

⁵⁹ Willy Østreng, "Shipping and Resources in the Arctic Ocean: A Hemispheric Perspective," 255.

⁶⁰ Willy Østreng, "Shipping and Resources in the Arctic Ocean: A Hemispheric Perspective," 255–256.

Second, trans-Arctic shipping will reduce dependency on sea routes through vulnerable maritime chokepoints such as the Strait of Malacca and the Suez Canal. The Strait of Malacca is renowned for piracy and the Suez Canal was closed completely during the Suez Crisis in 1956-1957 and remains vulnerable to regional instability and terrorism.⁶¹

While trans-Arctic shipping has lucrative prospects, a number of challenges have to be mitigated to make commercial trans-Arctic shipping a reality. First, the three principal trans-Arctic sea routes will not be available for commercial shipping at the same time. The shortest and most promising route, the trans-Polar route, will not be available till the Arctic Ocean is ice free, and has not yet been transited by commercial vessels. Therefore, trans-Arctic shipping is highly dependent on the reduction in sea ice, complemented by icebreaking. Commercial shipping will have to rely on the Northern Sea Route and the North West Passage and, most likely, icebreakers or polar class vessels until summers are sea ice free.

Second, the maritime infrastructure in the Arctic is presently inadequate to support large scale commercial trans-Arctic shipping on the Northern Sea Route and the North West Passage. Although investments have been made, port facilities, communications systems, and Search-and-Rescue services are lacking in comparison to other maritime routes. For example, the USSR had a developed maritime infrastructure to run the Northern Sea Route; however, the infrastructure dwindled after the demise of the USSR.⁶² Therefore, Russia is investing heavily in new port facilities, communications systems and search-and-rescue services to enable commercial use of the

⁶¹ Malte Humpert and Andreas Raspotnik, "The Future of Arctic Shipping Along the Trans Polar Route," in *Arctic Yearbook 2012*, ed. Lassi Heinenen (Akureyri, Island: Northern Research Forum, 2012), 295–299, <http://www.arcticyearbook.com>.

⁶² Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 181–182.

Northern Sea Route.⁶³ The North West Passage is worse off, as there is presently no port infrastructure to support trans-Arctic shipping.⁶⁴ The U.S. and Canada have made some efforts, but not nearly enough, to offset the lack of infrastructure in comparison to the Northern Sea Route.⁶⁵

Third, both the Northern Sea route and the North West Passage have disputes over the status of the routes as either territorial waters or international straits. Canada has an ongoing dispute with the U.S. and the EU on the status of the North Western Passage; they claim it to be an international strait whereas Canada claims the part of the route in Canadian territorial waters to be sovereign Canadian territory.⁶⁶ Likewise, Russia claims unlimited regulatory rights to the Northern Sea Route, whereas the U.S. and the EU claims the route in Russian territorial waters to be international straits.⁶⁷

Unresolved Territorial Disputes

Despite the inherent challenges, Arctic natural resources and new trans-Arctic shipping routes have lucrative economic opportunities. Key to resource extraction and control of shipping routes are issues of territorial delimitation. The Arctic has a number of unresolved territorial disputes, which are a major point of divergent state interests in the Arctic Ocean. Notably, Russia, a great power and the only non-NATO littoral Arctic state, is part of four territorial conflicts signifying geopolitical friction between Russia and NATO-members in the Arctic Ocean. Moreover, Canada has two ongoing disputes with the U.S. signifying disagreement even among allies. The following focuses on the

⁶³ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 176–183.

⁶⁴ Willy Østreng, "Shipping and Resources in the Arctic Ocean: A Hemispheric Perspective," 262.

⁶⁵ Willy Østreng, "Shipping and Resources in the Arctic Ocean: A Hemispheric Perspective," 262–263.

⁶⁶ Willy Østreng, "Shipping and Resources in the Arctic Ocean: A Hemispheric Perspective," 260.

⁶⁷ Willy Østreng, "Shipping and Resources in the Arctic Ocean: A Hemispheric Perspective," 252–253.

three major territorial disputes and two other relevant disputes and leaves out minor disputes e.g. Hans Island between Canada and Denmark, because these neither influence security nor economic interests. See Appendix for map of disputed areas.

The right to extract resources in the sea and on the seabed is regulated by the United Nations Convention of the Law of the Sea (UNCLOS). According to this, a coastal state has the right to the resources within its own territory and territorial waters, within the EEZ extending up to 200 NM from its territorial waters, and/or within any extension of the EEZ based on natural prolongation of the continental shelf. Notably, the U.S. has not ratified the treaty and is therefore unable to make claims under the auspices of the treaty. Nevertheless, the U.S. has recognized the treaty as customary law.⁶⁸ The Committee on the Limits of the Continental Shelf (CLCS), a scientific committee, staffs claims of natural prolongations of the continental shelf, and proposes recommendations for bilateral delimitation of border disputes.

The first major territorial dispute in the Arctic Ocean is the overlapping claims by extension of the 200 NM EEZ. The primary disputed area is the part of the Arctic Ocean covering the geographical North Pole based on extension of the 200 NM EEZs of Russia, Canada, and Denmark. The claims are based on extension of the continental shelf by the undersea ridges. Russia made its claim in 2001, based on the Lomonosov Ridge and Mendeleev Ridge as natural prolongations of the Siberian shelf. However, Russia is expected to revise its submitted claim in 2015.⁶⁹ Conversely, the preliminary Canadian claim from 2013 and the Danish claim from 2014, are based on the Lomonosov Ridge as a natural prolongation of the North American shelf, through Ellesmere

⁶⁸ Emmerson, *The Future History of the Arctic*, 94–95.

⁶⁹ International Boundary Research Unit, “Denmark/Greenland Make Arctic Ocean Continental Shelf Submission -,” *Boundary News*, December 15, 2014, https://www.dur.ac.uk/ibru/news/boundary_news/?itemno=23226&rehref=%2Fibru%2Fnews%2F&resubj=Boundary+news%20Headlines.

Island in Canada, and Greenland in Denmark (see Appendix Maritime Jurisdiction and Boundaries in the Arctic Region for depiction of the claims). Therefore, their claims overlay Russian claims; in the case of the Danish 2014 claim, it extends all the way to the Russian EEZ.⁷⁰ The CLCS staffs the divergent claims of natural prolongations of the continental shelf; yet, due to the amount of scientific data it will take several years for the committee to make a recommendation. Regardless of the disputes embedded in the UN process, the disagreement adds friction to the relationship between two sovereign NATO-members, albeit small ones, and a great power, Russia.

The second major territorial dispute is over resource rights in the sea off the Svalbard archipelago between Norway and Russia. The Svalbard archipelago is regulated under the 1920 Svalbard Treaty, and the dispute is over rights to seabed resources and fisheries. The crux of the conflict is the applicability of the treaty to the waters surrounding the Svalbard archipelago, based on different interpretations of the text. According to the treaty all signatory states have the right to extract resources on the Svalbard archipelago and in the adjacent waters.⁷¹ Norway claims the treaty only applies in the territorial waters of Svalbard, whereas Russia and others claim applicability within the EEZ established around Svalbard.⁷² Although Russia and Norway have concluded a long standing dispute over the delimitation of the Barents Sea in 2010, the issue of Svalbard was not part of the agreement and is still contentious.⁷³ Thus, Svalbard is another point of friction between a NATO-member and Russia.

⁷⁰ International Boundary Research Unit, "Maritime Jurisdiction and Boundaries in the Arctic Region" (Durham University, February 27, 2015), http://www.dur.ac.uk/resources/ibru/resources/ibru_arctic_map_27-02-15.pdf.

⁷¹ Anderson, *After the Ice*, 129.

⁷² Anderson, *After the Ice*, 129–130.

⁷³ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 104–109.

The third major territorial dispute is the status of the North West Passage and the Northern Sea Route. As argued earlier, Canada and Russia are in conflict with the U.S. and the EU over the status of the shipping routes. In both cases the U.S. and the EU claims freedom of the seas over the claims of Canada and Russia to regulate the shipping routes in their territorial waters, Canada and Russia have even consulted each other on the issue.⁷⁴ In the case of the dispute of the Northern Sea Route, the dispute is a point of friction between two great powers the U.S., a NATO member, and Russia; and in the case of the North West Passage, a dispute between two allied states, both NATO members, Canada and the U.S.

The fourth relevant territorial dispute is the delimitation of the Bering Sea and Chukchi Sea between Russia and the U.S. Although the issue was agreed on in 1990 by the USSR and the U.S., the Russian parliament have not yet ratified the agreement. They argue that the agreement cedes important fisheries and seabed rights to potential hydrocarbon deposits to the U.S..⁷⁵ Thus, the dispute is yet unresolved and adds to the friction between the U.S. and Russia in the Arctic.

The fifth relevant territorial dispute is between the U.S. and Canada over the delimitation of the Beaufort Sea. The U.S. wants to delimitate the area by drawing the line perpendicular to the coast, whereas Canada wants to delimitate the area by extension of the land boundaries as maritime boundaries. The area in dispute, a large triangle, is projected to hold off-shore hydrocarbon resource, and continues to be unsolved.⁷⁶ This forms a second point of disagreement between Canada and the U.S. Key to peaceful agreement on territorial

⁷⁴ Kraska, "The New Arctic Geography and U.S. Strategy," 258–262.

⁷⁵ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 102–103.

⁷⁶ Rob Huebert, "U.S. Arctic Policy: The Reluctant Arctic Power," in *The Fast-Changing Arctic: Rethinking Arctic Security for a Warmer World*, ed. Barry Scott Zellen, Northern Lights (Calgary, AB: University of Calgary Press, 2013), 210–212.

disputes is the established inter-governmental forums and regimes in the Arctic which are examined next.

Pan-Arctic Inter-Governmental Forums and Regimes

The international system is anarchical. Nevertheless, the Arctic is not a Hobbesian anarchy, self-interested cooperation does occur, and some is established in inter-governmental forums and regimes such as: the Arctic Council; the Ilulissat Declaration defining the Arctic Five; and UNCLOS, supported by CLCS. NATO is not included, because it does not include Russia and will be addressed later. The EU Northern Dimension, Barents Euro-Arctic Region, and NORDEFCO are not included as they are sub-regional forums. The present pan-Arctic regimes are weak because they do not address the core national interest of security, nor do they have legally binding obligations, or in the case of UNCLOS/CLCS, rely on bilateral agreement, with optional arbitration. The following examines the relevant inter-governmental forums and regimes outlining their role in the Arctic.

The Arctic Council was established in 1996 and includes the five littoral Arctic states: the U.S., Russia, Canada, Norway, and Denmark; as well as three other Arctic states: Iceland, Sweden, and Finland. Moreover, a number of non-Arctic states, indigenous Arctic peoples, and non-governmental organizations have observer or non-voting status in the council which operates by consensus.⁷⁷ While the Arctic Council is the only pan-Arctic inter-governmental forum, it is a weak inter-governmental forum. First, it deliberately does not address nor consider military security issues. This is because the Ottawa declaration, which specifies the issues relevant to the Arctic Council has a notable footnote, which states “The Arctic Council should not deal with matters of military

⁷⁷ Le Mièrre, *Arctic Opening*, 39–40.

security.”⁷⁸ Therefore, these issues have to be addressed outside the auspices of the Arctic Council thereby weakening it as military security is a primary national interest of states. Second, the Arctic Council does not have any legally binding obligations.⁷⁹ This, in combination with operation by consensus, weakens the council, as any statement or actions decided have to be in full agreement with all members, and implementation lacks any legally binding framework to codify or enforce decisions. Third, the council has focused primarily on soft policy issues, such as environmental protection, climate assessment, research coordination and sharing of knowledge.⁸⁰ Notably, the Arctic Council oversees and coordinates a number of significant research programs; for example, the Arctic-Monitoring-and-Assessment-Program and the Protection-of-the Arctic-Maritime-Environment. Nevertheless, the only two real diplomatic outcomes are a search-and-rescue agreement and an agreement on marine oil-pollution preparedness and response.⁸¹ Fourth, the Arctic Council did not have any permanent bodies until the establishment of a secretariat in 2013.⁸² Fifth, the unity of the Council was questioned by the 2008 Ilulissat Declaration, where the five littoral Arctic states, the Arctic Five, excluded the three other voting members of the Arctic Council. This by not inviting them to the summit and by issuing a declaration stating the primacy of the Arctic Five in the Arctic.⁸³

⁷⁸ Arctic Council, “Declaration on the Establishment of the Arctic Council 1996 - Ottawa Declaration,” September 19, 1996, <http://library.arcticportal.org/1270/>.

⁷⁹ Pauli Järvenpää and Thomas Ries, “The Rise of the Arctic on the Global Stage,” in *Arctic Security in an Age of Climate Change*, ed. James Kraska (New York, NY: Cambridge University Press, 2013), 143.

⁸⁰ Maj. Henrik Jedig Jørgensen, “Babysteps: Developing Multilateral Institutions in the Arctic,” in *The Fast-Changing Arctic*, Northern Lights (Calgary, AB: University of Calgary Press, 2013), 145–147.

⁸¹ Le Mièrè, *Arctic Opening*, 110–112.

⁸² Le Mièrè, *Arctic Opening*, 40.

⁸³ Le Mièrè, *Arctic Opening*, 127–128.

While the regime established by the 2008 Ilulissat Declaration underlines the primacy of the Arctic Five, it is a weak regime. First, the signatories of the Ilulissat declaration affirm their commitment to UNCLOS as the legal regime governing the Arctic and affirms commitment to resolve overlapping claims to the continental shelf in an orderly manner. Yet, this is solely a declaratory statement of intention as the declaration text lacks legally binding obligations and methods of enforcement except declared commitment to UNCLOS. Second, the signatories declared “no need to develop a new comprehensive international legal regime to govern the Arctic.”⁸⁴ Thereby, the signatories underlined no need for new stronger regimes. Third, while the U.S. is a signatory nation of the Ilulissat declaration, the US Secretary of State, Hillary R. Clinton, expressed serious doubt about the relevancy of an exclusive Arctic forum, as the Arctic Five, during the second meeting of the Arctic Five in Canada in 2010.⁸⁵ Thereby, the U.S. weakened the Arctic Five as a forum and the Ilulissat declaration as a regime.

The last Arctic regime examined is the UNCLOS, supported by the CLCS. Although, UNCLOS provides a legal framework for rights to sea and seabed, and is supported by the CLCS, it is a weak regime. First, as argued earlier, because the U.S. has not ratified the UNCLOS; yet, the U.S. acknowledges the convention as customary law. Second, states are not bound by the recommendations of the CLCS unless it chooses to be. This is because the CLCS only establishes scientific recommendations for political bilateral agreement; international arbitration is optional and has to be agreed bilaterally.⁸⁶ With weak inter-governmental forums and

⁸⁴ Arctic Ocean Conference Ilulissat, Greenland, “The Ilulissat Declaration,” May 28, 2008, http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf.

⁸⁵ Peter Hough, *International Politics of the Arctic: Coming in from the Cold*, Routledge Advances in International Relations and Global Politics (New York: Routledge, 2013), 108–110.

⁸⁶ Hough, *International Politics of the Arctic*, 36–37.

regimes, individual state interests, especially great power interests, are dominant in the anarchical international system. These state interests are examined next.

State Economic Interests in the Arctic

In the anarchical international system, states pursue self-interest, mainly survival and power. Any established order, herein peace, is an unintended byproduct of great power competition. Thus, current order and peace in the Arctic is mainly a product of great power competition between the U.S. and Russia, previously the USSR. Although, not as adversarial nor confrontational as during the Cold War. In this context the littoral Arctic states; Russia, the U.S., Canada, Denmark, and Norway have different interests in the Arctic; yet, mainly economic and security interests. Security interest are addressed in the next chapter.

Although, the European Union (EU) undoubtedly has economic interests in the Arctic, the EU as an organization is not considered an actor of direct relevancy to the Arctic for three primary reasons. First, none of the littoral Arctic states are members of the EU. Although, Denmark is a member of the EU, the part of the Kingdom of Denmark in the Arctic, Greenland, opted out of the EU in 1985.⁸⁷ Thereby the littoral Arctic part of the Danish Realm is not under the auspices of the EU.⁸⁸ Second, the EU is not represented in the primary Arctic inter-governmental organization: the Arctic Council. This is because the EU's application for permanent observer status was turned down in 2009.⁸⁹ The EU commission, the executive body of the EU, applied in 2013 and

⁸⁷ Hough, *International Politics of the Arctic*, 79.

⁸⁸ The Faroe Islands, part of the Kingdom of Denmark, included in the AMAP definition of the Arctic, has never been a member of the EEC, nor the EU. See Foreign Service of the Prime Minister's Office, "Faroe Islands," *The Faroe Islands in Europe*, accessed May 6, 2015, <http://www.faroeislands.fo/Default.aspx?ID=13425>.

⁸⁹ Charles K. Ebinger and Evie Zambetakis, "The Geopolitics of Arctic Melt," *International Affairs* 85, no. 6 (November 2009): 1230, doi:10.1111/j.1468-2346.2009.00858.x.

was likewise turned down.⁹⁰ Although Sweden and Finland are EU members, they are not littoral Arctic states, thereby not of primary interest to issues related to the Arctic Ocean and littoral Arctic. Third, although, Iceland also a member of the Arctic Council and applied for membership of the EU in the wake of their financial collapse in 2009, they withdrew their application for EU membership in March 2015.⁹¹ Thereby, Iceland, the last of the permanent members of the Arctic Council, will presently not join the EU. Consequently, neither the EU, Finland, Sweden, nor Iceland will be included in the analysis of state economic interest in the Arctic.

Russia has major economic interests in the Arctic. Russia has the most territory in the Arctic of all the littoral Arctic nations and is economically dependent on the Arctic. First, the vast territories and waters of Russia spans almost half of the circumpolar map. Second, the Russian economy is highly dependent on revenue from natural resource extraction in the Arctic. For example, up to 20 % of the Russian GDP and 22 % of exports are from the Arctic.⁹² In addition, 95% of natural gas production in Russia, and 75 % of oil production takes place in the Arctic; supplemented with large scale mineral resource extraction and fisheries.⁹³ Third, Russia's economic future is closely tied to the Arctic, due to the economic dependency on extractive industries and vast prospects of natural resources in the Russian Arctic, especially off-shore. For example, 90 % of the hydrocarbon reserves on the Russian shelf is

⁹⁰ Luke Coffey, "The Arctic Council Rejects the European Union," *Daily Signal*, May 16, 2013, <http://dailysignal.com/2013/05/16/the-arctic-council-rejects-the-eu-a-boost-for-sovereignty-and-democracy/>.

⁹¹ "Iceland Withdraws EU Accession Bid," *DW.DE*, March 12, 2015, <http://www.dw.de/iceland-withdraws-eu-accession-bid/a-18313183>.

⁹² Whitney P Lackenbauer, "Mirror Images? Canada, Russia, and the Circumpolar World," in *The Fast-Changing Arctic: Rethinking Arctic Security for a Warmer World*, ed. Barry Scott Zellen, Northern Lights (Calgary, AB: University of Calgary Press, 2013), 264.

⁹³ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 135–136.

found in the Arctic.⁹⁴ Likewise, as argued earlier the Russian Arctic has vast mineral reserves and lucrative fisheries. In addition, the economic prospects of natural resource extraction in the Arctic is enabled by the development of the Northern Sea route, both as domestic route or trans-Arctic route. Fourth, the present official Russian strategy for the Arctic, issued in 2008, states that the Arctic by 2020 should be “Russia’s foremost strategic base for natural resources.”⁹⁵ Fifth, the economic future of Russia and Russia’s great power status is closely related. In a 1999 Article, *Mineral Resources and the Strategic Development of the Russian Economy*, Vladimir Putin expressed that the future of Russia as a great power depends on Russia’s natural resources with an estimated value of \$28 trillion.⁹⁶ If the majority of these natural resources are in the Arctic as argued above, then Russia’s future as a great power is dependent on development of the Arctic; herein the Northern Sea Route.

While the reigning hegemon of the Western hemisphere, and the second Arctic great power, the U.S., has obvious security interests in the Arctic. The U.S. economic interests in the Arctic are minor compared to Russia, and mainly focused on natural resource extraction in and around Alaska and in ensuring freedom of the seas in the NWP and NSR. First, while hydrocarbon resources in and off Alaska are a major U.S. reserve; Alaska’s energy production amounts only to 3.5 % of total U.S. production and 14 % of the oil production.⁹⁷ Moreover, development of hydrocarbon extraction in and off Alaska has been complicated by environmental concerns and the territorial dispute with Canada over the Beaufort Sea.⁹⁸ In addition, new extractive technologies especially hydraulic fracturing, have increased U.S. hydrocarbon production,

⁹⁴ Katarzyna Zysk, “Russia’s Arctic Strategy: Ambitions and Restraints,” in *The Fast-Changing Arctic: Rethinking Arctic Security for a Warmer World*, ed. Barry Scott Zellen, Northern Lights (Calgary, AB: University of Calgary Press, 2013), 283.

⁹⁵ Quoted in Zysk, “Russia’s Arctic Strategy: Ambitions and Restraints,” 283.

⁹⁶ Emmerson, *The Future History of the Arctic*, 201–202.

⁹⁷ Huebert, “U.S. Arctic Policy: The Reluctant Arctic Power,” 196–197.

⁹⁸ Huebert, “U.S. Arctic Policy: The Reluctant Arctic Power,” 193–200.

primarily in North Dakota and Texas, and made the U.S. the biggest oil producer in the world ahead of Saudi Arabia.⁹⁹ In 2010, the U.S. surpassed Russia as the biggest producer of natural gas.¹⁰⁰ Second, as argued earlier the U.S. has emphasized freedom of the seas in the disputes with Canada and Russia over the NWP and the NSR.

Although, the three minor littoral Arctic States, Canada, Norway, and Denmark are all allied with the U.S. in NATO, each state has their own economic interests in the Arctic. Canada's economic interests in the arctic are responsible development of natural resources and sovereignty in the Arctic. For example, Canada's Arctic strategy emphasizes four pillars: sovereignty; environmental protection; social and economic development, herein responsible extraction of hydrocarbons and minerals; and governance in Canada's northern territories.¹⁰¹ Moreover, Canada's emphasis on sovereignty is underlined by their continued disputes with the U.S. over the NWP and the Beaufort Sea, despite their alliance.

While Denmark's economic interests in the Arctic are closely tied to the status of Greenland in the Danish realm, the Kingdom of Denmark's declared economic interests in the Arctic, like those of Canada, are responsible development of natural resources and sovereignty. First, in 2008 Greenland was granted increased autonomy from the Kingdom of Denmark, as a continuation of home rule, with future options of further independence from the Kingdom of Denmark. Part of this autonomy was increased Greenlandic control over revenues from extraction of natural resources in Greenland and off-shore. However, Denmark continues to control currency, monetary, foreign, defense, and security policy in

⁹⁹ Grant Smith, "U.S. Seen as Biggest Oil Producer After Overtaking Saudi," *Bloomberg.com*, July 4, 2014, <http://www.bloomberg.com/news/articles/2014-07-04/u-s-seen-as-biggest-oil-producer-after-overtaking-saudi>.

¹⁰⁰ Smith, "U.S. Seen as Biggest Oil Producer After Overtaking Saudi."

¹⁰¹ Indian and Northern Affairs Canada Government of Canada, "Canada's Northern Strategy - Our North, Our Heritage, Our Future," August 18, 2009, <http://www.northernstrategy.gc.ca/cns/cns-eng.asp>.

Greenland.¹⁰² Second, development of hydrocarbon and mineral extraction industries is a way to reduce Greenland's heavy reliance on Danish financial support, paving the way for possible full independence.¹⁰³ Third, Denmark's emphasis on sovereignty and economic prospects of natural resource extraction can be seen in the extensive claim to the continental shelf issued in 2014.

Norway's economic interests in the Arctic, follows the pattern of Denmark and Canada, and is focused on responsible natural resource extraction, especially hydrocarbons, and sovereignty. First, Norway is one of the wealthiest countries in the world and Norway's wealth is based on hydrocarbons. According to the European Commission, the oil and gas sector in Norway accounts for 22 % of GDP, and 65% of exports.¹⁰⁴ Second, presently Norway extracts hydrocarbon off-shore from the North Sea to the Barents Sea; however, new exploration and production is expected to be in the Arctic, primarily in the Barents Sea and the area around Svalbard.¹⁰⁵ Therefore, Norway's continued hydrocarbon production is tied closely to the Arctic. Third, Norway's stance on off-shore rights in the waters around Svalbard, especially with Russia, underlines Norway's firm commitment to national sovereignty.

Summary

This chapter has defined and examined the Arctic and its context. As argued above, the AMAP definition of the Arctic most succinctly delimitates the region geographically and politically. In this perspective the Arctic can be viewed as a regional security sub-complex in a

¹⁰² Bertelsen, Rasmus Gjedssø, "Structural, Environmental, and Political Conditions," in *The Fast-Changing Arctic: Rethinking Arctic Security for a Warmer World*, ed. Zellen, Barry Scott, Northern Lights (Calgary, AB: University of Calgary Press, 2013), 176–179.

¹⁰³ Barry Scott Zellen, *The Fast-Changing Arctic: Rethinking Arctic Security for a Warmer World* (Calgary, AB: University of Calgary Press, 2013), 178.

¹⁰⁴ "Norway - Trade," *European Commission*, accessed January 30, 2015, <http://ec.europa.eu/trade/policy/countries-and-regions/countries/norway/>.

¹⁰⁵ Emmerson, *The Future History of the Arctic*, 245–251.

European super-complex. The structure is balanced bi-polarity in the sub-complex between the U.S., a superpower, and Russia, a great power; with three minor powers, Canada, Denmark and Norway allied with the U.S. in NATO balancing Russia. But, the Arctic is changing; sea ice is receding and sea ice becomes younger and thinner. Sea ice change, complemented by icebreaking technologies makes the Arctic increasingly accessible. Access opens up two major economic prospects: vast natural resources and shipping. Strategic resources: hydrocarbons, minerals, and rare-earth elements; as well as fisheries provide lucrative economic opportunity. Trans-Arctic shipping, connecting the North Atlantic states to the northeast Asia, has great economic potential; supplemented with regional Arctic shipping opening up extractive industries and trade in a previously inaccessible environment.

Yet, these opportunities are not without challenges. The Arctic is a technically and physically challenging environment and development of natural resources and shipping requires vast investments and profitability depends on the volatile international market. To complicate issues further, the Arctic has unresolved territorial disputes both between Russia and NATO members as well as between NATO members. This causes friction and divergent state interests and complicates development of the economic opportunities in the Arctic. The unresolved territorial disputes are complemented with weak pan-Arctic inter-governmental forums and regimes: the Arctic Council, the Ilulissat Declaration, and UNCLOS/CLCS; because the regimes do not address security or depend on voluntary bilateral agreement in settling the territorial disputes. This is in a geopolitical context of divergent state interest, where Russia has key economic interests tied to the Arctic. Russia's economy depends on Arctic natural resources; moreover, its continued great power status depends on further development of the Arctic for natural resource extraction and shipping. The U.S., the other Arctic great power, does not have the same major economic interests in

the Arctic, but is associated with the three minor littoral Arctic states, Canada, Norway, and Denmark, each with their separate set of economic and sovereign interests in the Arctic, some of which are divergent with Russia, the U.S., or both.

This offers a challenging political and economic context for security in the Arctic, especially in the present geopolitical situation where great power competition over Eastern Europe has returned to the center of the international stage; where an assertive great power, Russia challenges the U.S., and NATO allies, with continued pro-Russian unrest in eastern Ukraine, after Russian de-facto annexation of Crimea. The military significance of the Arctic is examined next, in which this changing international environment is a key variable.



Chapter 3

Military Significance

NATO remains a military alliance, and we are against having a military alliance making itself at home right in our own backyard; in our historic territory.

- Vladimir Putin, 2014

If there is a third world war the strategic center of it will be the North Pole

- General Hap Arnold, USAF, 1950

The immediate post-Cold War era saw a rapid decline in the military significance of the Arctic as an area of geostrategic importance and potential conflict. However, several key factors such as international relations, the physical environment, military and transport technologies, and a changed military posture indicate increased military significance of the Arctic. In this chapter I argue that the Arctic is of increased military significance. This increased importance is conferred by changes in four primary factors: first, relations between Russia and NATO reaching a post-cold war low; second, changes in access to and use of the Arctic, enabled by receding sea ice; third, changes in transport and military technologies and increased relevancy of enabling technologies, both which enables increased use of the Arctic for both economic and military purposes; lastly, changes in Russian military posture in the Arctic. In order to examine these changes the following approach is used: first, the impact of changes in relations between NATO and Russia is examined; second, the changes in the Arctic physical environment are briefly reviewed; third, the role of technology in Arctic geography is explored, focused on maritime and aerospace technologies in relation to military significance; last, the changes in Russian military posture is examined.

Changes in International Relations between NATO and Russia

The first factor contributing to the military significance of the

Arctic is worsened relations between Russia and NATO. Deterioration of relations between Russia and NATO increases the military significance of the Arctic, as four of the Arctic littoral states are all members of NATO, and the other littoral state is Russia. The Arctic is included in the area in which NATO provides collective defense under the North Atlantic Treaty's Article Five; this is outlined in Article Six, which specifies the North Atlantic area for collective defense as the territories, islands, or areas under the jurisdiction of the member nations in the area north of the Tropic of Cancer.¹ The Tropic of Cancer demarcates the northernmost latitude where the sun can be observed directly overhead at its culmination, approximately at 23.5° N latitude.

Since early 2014, the relations between Russia and NATO have unfortunately dropped to a post-Cold War low. The end of the Cold War marked a dramatic change in international relations, with the demise of the USSR, the superpower opposed to the West. This altered the threat, which NATO was intended to balance against and led NATO to refocus on other operations, mainly out-of-area operations in Afghanistan or in NATO's proximity in Libya and Yugoslavia. However, the combination of NATO and EU expansion in Eastern Europe and a resurgent and increasingly belligerent Russia have caused relations between NATO and Russia to reach a post-Cold War low. Four elements indicate the deterioration of the relationship between Russia and NATO. First, Russia's recent involvement in the conflict in eastern Ukraine and the de-facto annexation of Crimea has been the peak of Russia's willingness to exert itself in the near abroad. In both cases Russia has employed para-military and military forces under the cloak of *maskirovka*, a fog of deception and misinformation, in support of local pro-Russian separatist and irregular forces. In the case of Crimea, *de facto* annexation of

¹ "The North Atlantic Treaty," NATO, accessed February 24, 2015, http://www.nato.int/cps/en/natohq/official_texts_17120.htm.

Crimea has taken Russian involvement in its near abroad to a new level, as Russia has gone further in Ukraine than in prior conflicts by the annexation of territory.² This has challenged security in Europe, and thereby NATO as the primary collective defense organization in Europe by redrawing borders, a habit most thought abandoned after World War II. In the case of eastern Ukraine, Russian support to pro-Russian separatists have caused the relationship between NATO and Russia to deteriorate further. For example, the influx of Russian heavy military equipment and personnel supports the pro-Russian separatists in their fight against Ukrainian government forces. Thus, Russian support keeps the conflict alive. Another example of the deterioration of Russia's relationship with the West is the shoot down of Malaysian Airlines Flight 17 in July 2014 over separatist controlled areas in Eastern Ukraine, most likely by Russian separatists supplied with Russian weapons.³ This event caused increased economic sanctions by the U.S. and the EU.⁴

Second, prior to recent events in Ukraine and Crimea, Russia exhibited an increased willingness to use force in the 2008 war in Georgia and in 2007 cyberattacks against Estonia. For example, in 2008, Russia invaded Georgia in support of the pro-Russian separatist regions of Abkhazia and South Ossetia, which the Georgian government were seeking to reincorporate.⁵ According to Mearsheimer, one of the prime motivators for Russia to destabilize Georgia by invasion and give support to the separatists was the prospect of NATO expansion to

² Jeffrey Mankoff, "Russia's Latest Land Grab," *Foreign Affairs*, April 17, 2014, <http://www.foreignaffairs.com/articles/141210/jeffrey-mankoff/russias-latest-land-grab>.

³ Stephen Holmes and Ivan Krastev, "Putin's Losing Streak," *Foreign Affairs*, July 30, 2014, <http://www.foreignaffairs.com/articles/141663/stephen-holmes-and-ivan-krastev/putins-losing-streak>.

⁴ Mankoff, "Russia's Latest Land Grab."

⁵ John J. Mearsheimer, "Why the Ukraine Crisis Is the West's Fault," *Foreign Affairs*, August 18, 2014, 79, <http://www.foreignaffairs.com/articles/141769/john-j-mearsheimer/why-the-ukraine-crisis-is-the-west-s-fault>.

Georgia and Ukraine as promoted at the 2008 NATO summit in Bucharest.⁶ Another example of Russian belligerence was the 2007 cyberattack against critical information infrastructure of Estonia's banking sector, spurred by a dispute over the relocation of a Soviet World War II memorial, which had turned into a riot in Tallinn. Although, the attacks were not directly attributable to the Russian state, indices point at official sanctioning of more or less government affiliated hacker groups.⁷

Third, the revision of Russian military doctrine issued in December 2014, which outlines the main threats for the Russian Federation, stipulating that NATO expansion and military buildup in Eastern Europe are the main military threats to Russia.⁸ This doctrine formalized the Russian view of an antagonistic relationship with NATO.

Fourth, NATO has suspended civilian and military cooperation with Russia and taken measures to reemphasize alliance collective defense. Notably, NATO has focused on a rapid response force for augmentation of national forces in the NATO-member states in Eastern Europe bordering Russia. Suspension of civil and military cooperation was issued by NATO foreign ministers in a declaratory statement in April 2014, in which NATO condemned Russian involvement in the riots in Ukraine and support to Crimean separatists.⁹ This suspension of cooperation was reaffirmed in the Wales Summit declaration in September 2014; where the NATO-member states agreed on a renewed emphasis on collective defense and crisis management in Europe,

⁶ Mearsheimer, "Why the Ukraine Crisis Is the West's Fault," 78–79.

⁷ Richard A. Clarke, *Cyber War: The next Threat to National Security and What to Do about It* (New York, NY: Ecco, 2010), 12–16.

⁸ "Russia Revises Military Doctrine," *BBC News*, accessed February 25, 2015, <http://www.bbc.com/news/world-europe-30604866>.

⁹ "Statement by NATO Foreign Ministers - 1 April 2014," *NATO*, accessed February 25, 2015, http://www.nato.int/cps/en/natohq/news_108501.htm.

notably by the establishment of a very high readiness joint task force for crisis management, deterrence, and defense of NATO member states.¹⁰

Changes in the Arctic Physical Environment

The second factor contributing to military significance of the Arctic is the changing geography of the Arctic. As argued in chapter two the Arctic is changing; sea ice coverage of the Arctic Ocean is receding, and the Arctic Ocean is likely to have ice free summers within the next four decades. Ice free summers, in combination with thinner sea ice, is essential for access to and use of the Arctic Ocean, which presents great opportunities and challenges. Less ice coverage in general will make the Arctic Ocean accessible to surface vessels, both military and commercial. Moreover, this will enable both off-shore resource extraction on the seabed and expanded fisheries. On-shore industries and resource extraction will benefit from increased access to sea transport and ease of some operations due to milder weather. Thinner sea ice is easier to break for icebreakers and polar-class commercial vessels than thicker multi-year ice, thereby enabling increased use of the Arctic Ocean for surface vessels even in periods with some sea ice coverage.

Technological Change and Enabling Technologies

The third factor, which confers military strategic importance in the Arctic is technological change and existing technologies enabling use of the Arctic. Both established and new maritime and aerospace technologies confers military strategic significance to the Arctic as they enable access to and operations in the Arctic or facilitate utilization of the Arctic as a strategic corridor.

¹⁰ “Wales Summit Declaration Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Wales,” *NATO*, accessed February 25, 2015, http://www.nato.int/cps/en/natohq/official_texts_112964.htm.

Maritime Technologies

Icebreaking vessels, ice reinforced vessels, and off-shore structures enables increased access to and use of the Arctic Ocean. These technologies work in combination with receding sea ice, making the Arctic increasingly accessible to both commercial and military vessels, as well as enabling further exploitation of off-shore resources. This confers military strategic importance to the Arctic, as economic importance is raised by increased economic activity in the form of off-shore activity and trans-Arctic shipping, as discussed in chapter two.

Military significance directly related to military surface operations in the Arctic Ocean is threefold. First, icebreakers are an enabler for naval operations in the Arctic. Here Russia has a major advantage due to ownership of the world's largest icebreaker fleet, and the location of its largest fleet, the Northern Fleet, in the Arctic. According to the US Coast Guard, Russia has an icebreaker fleet of 40 vessels of all types, highlighted by four *Arktika*-class nuclear-powered icebreakers, which presently are the only nuclear-powered and the largest icebreakers in the world.¹¹ Moreover, Russia is constructing even larger and more powerful nuclear-powered icebreakers, notably three vessels of the LK-60-class and one planned vessel of the even larger LK-110-class.¹² In comparison Norway has one, the U.S. five, and Canada six icebreakers capable of Arctic operations; moreover, Norway, Canada, and the U.S. have planned construction of one conventional icebreaker each.¹³ Thereby, Russia has presently, and in the near future, a significant advantage in surface naval operations in the Arctic, due to its fleet of icebreakers.

Second, icebreaker-supported naval operations in the Arctic allows greater freedom of maneuver for naval forces, and increases the

¹¹ Milosz Reterski, "Breaking the Ice," *Foreign Affairs*, December 11, 2014, <http://www.foreignaffairs.com/articles/142516/milosz-reterski/breaking-the-ice>.

¹² Reterski, "Breaking the Ice."

¹³ Reterski, "Breaking the Ice" Denmark has four icebreakers; however, these are limited to operations in the Baltic sea and Danish Straits.

navigable season. For example, in 2013 Russia sent a naval task group headed by the flagship of the Northern Fleet, the Kirov-class nuclear-powered heavy missile cruiser *Peter the Great*, escorted by four nuclear-powered icebreakers 2.000 NM along the Northern Sea Route from Murmansk to Kotleny Island in the Laptev Sea, thereby demonstrating the feasibility of deployment of naval forces via a trans-Arctic SLOCs, presently enabled by nuclear-powered icebreakers.¹⁴

Last, icebreaker support and receding sea ice enable the use of Arctic SLOCs for deployment of naval forces from the Pacific to the Atlantic via the shorter trans-Arctic SLOCs. The inability to deploy naval forces from the Atlantic to the Pacific via the Arctic due, to a lack of icebreakers and infrastructure, was part of the contextual factors in the Russian defeat in the Russo-Japanese war in 1904-1905. Because the Russian Baltic Fleet had to travel the long route south of Africa in an attempt to reach the besieged Russian Pacific Fleet in Port Arthur, the Imperial Japanese Navy had ample strategic warning on the deployment of the Baltic Fleet, which led to the Russian defeat at the Battle of Tsushima.¹⁵ Despite prior recommendations by Vice-Admiral Markov and the scientist Mendeleyev to develop the infrastructure of the Arctic, for transfer of forces between the Atlantic and Pacific, by building an icebreaker fleet for operations in the summer; the Tsarist regime choose not to pursue Arctic capabilities.¹⁶ This event added to the later Soviet, and presently Russian, interest in the development of the Northern Sea Route and a fleet of icebreakers, rectifying the Tsarist error of not recognizing the geostrategic importance of Arctic SLOCs for redeployment of naval forces from the Atlantic to the Pacific.

¹⁴ Trude Pettersen, "Four Icebreakers for Missile Cruiser – None for Damaged Tanker," *Barentsobserver*, September 11, 2013, <http://barentsobserver.com/en/arctic/2013/09/four-icebreakers-missile-cruiser-none-damaged-tanker-11-09>.

¹⁵ Le Mièrre, *Arctic Opening*, 79–80.

¹⁶ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 25–26.

Nuclear submarine technologies have also conferred military strategic importance to the Arctic, as nuclear-powered submarines, which by the ability to operate submerged for prolonged periods of time, are not disadvantaged by ice or sea ice to the same degree as surface vessels. In comparison to traditional submarine propulsion systems, diesel or gasoline engines, nuclear-powered submarines have longer surface and submerged endurance, as they do not need oxygen for propulsion nor do they need to refuel as often. For example, the first operational nuclear submarine, USS *Nautilus*, traversed the Arctic Ocean under the North Pole in 1958.¹⁷ This demonstrated the primacy of nuclear-powered submarines by accomplishing a feat previously impossible for submarines. Shortly afterward, USS *Triton*, another nuclear-powered submarine, demonstrated very long-range endurance by circumnavigating the earth.¹⁸

The ability of nuclear submarines to operate in the Arctic Ocean under the ice for prolonged periods of time enables them to take advantage of the sea ice cover as a sanctuary from airborne and surface anti-submarine operations. This was utilized by the USSR and the U.S. during the Cold war, where SSBNs and SSNs operated under the ice cap and played a game of cat-and-mouse submerged in the Arctic Ocean. In the 1970s, the introduction of new classes of Soviet SSBNs, *Delta*-class and *Typhoon*-class, armed with new classes of SLBMs with the range to strike the U.S. mainland from the Arctic, increased the military significance of the Arctic.¹⁹ Soviet SSBNs no longer had to operate in vicinity of the U.S. mainland to hold it at risk.²⁰ The Arctic Ocean, along with Sea of Okhotsk in the Pacific, became the main operating areas for

¹⁷ Dave Oliver, *Against the Tide: Rickover's Leadership Principles and the Rise of the Nuclear Navy* (Annapolis, Maryland: Naval Institute Press, 2014), 28–29.

¹⁸ Oliver, *Against the Tide*, 29–30.

¹⁹ Kristine Offerdal and Rolf Tamnes, eds., *Geopolitics and Security in the Arctic: Regional Dynamics in a Global World*, Routledge Global Security Studies (New York, NY: Routledge, 2014), 27.

²⁰ Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 27.

Soviet SSBNs. Here, the SSBNs operated protected under the sea ice and under the protection of the bastion concept; where the surface navy and shore-based naval aviation protects an area of operations for the SSBNs.²¹ Although the Cold War is over and the total number of operational submarines in the Northern Fleet has declined from 154 in 1991 to 41 in 2010, Russia continues to rely on the Polar ice cap and bastion concept for SSBN operations in order to have a survivable second strike capability.²² As sea ice recedes, and especially in the ice free season, Russia will have to rely more and more on the bastion concept for protection of their operations areas. However, continued Russian reliance on SSBNs as part of their nuclear deterrence force is demonstrated by investment in a new generation of SSBNs: the *Borei*-class (Russian designation), with a new generation of SLBMs – the *Bulava* missile.²³ Initially the new SSBN will supplement the existing *Delta-III*, *Delta-IV*, and single *Typhoon*-class SSBN and in the future replace them.²⁴ Although, the *Bulava*-missile has been plagued with problems, in 2014 the Russian navy received its third *Borei*-class SSBN and conducted several successful launches of the *Bulava* missile, including the first operational test launch from the Barents Sea.²⁵

Of relevancy to both surface and sub-surface operations is maritime nuclear propulsion which provides vessels with endurance and relative independence of fueling stations. Therefore, this technology critically enables maritime operations in the Arctic, as it mitigates vast

²¹ Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 27.

²² Katarzyna Zysk, "Military Aspects of Russia's Arctic Policy," in *Arctic Security in an Age of Climate Change*, ed. James Kraska (New York, NY: Cambridge University Press, 2013), 92–94.

²³ Zysk, "Military Aspects of Russia's Arctic Policy," 91–94.

²⁴ Zysk, "Military Aspects of Russia's Arctic Policy," 92–93.

²⁵ "Russia Accepts Third Borei-Class Boomer," *USNI News*, accessed February 27, 2015, <http://news.usni.org/2014/12/11/russia-accepts-third-borei-class-boomer>; "Bulava Missile Launched from Barents Sea," *Barentsobserver*, accessed February 27, 2015, <http://barentsobserver.com/en/security/2014/10/bulava-missile-launched-barents-sea-30-10>.

distances, ice coverage, and insufficient maritime infrastructure. This enables the operation of both icebreakers and submarines. As argued above, Russia operates the world's only fleet of nuclear icebreakers, which enables both civilian and military maritime operations in the Arctic. As mentioned above, both the U.S. and Russia also operate a range of nuclear-powered submarines. Nuclear propulsion confers military strategic importance to the Arctic, as both submarine and icebreaker technologies are critically enabled for operations in the Arctic by nuclear propulsion.

Aerospace Technologies

In addition to naval weapons, aircraft and missiles have changed the Arctic from an insurmountable barrier of sea ice, frigid lands, and icy seas to a strategic corridor between Russia and North America, as they allow passage above the ice barrier, regardless of when ice free summers will allow operations in the Arctic Ocean. Air routes crossing the Arctic provide the shortest distance via great circles between most destinations in the Northern Hemisphere. Therefore manned flight confers military strategic importance to the Arctic. During the early stages of the Cold War the Arctic was a key area of operations as Soviet and US long-range bombers would fly via the Arctic en-route to their targets.²⁶ The key military significance of the Arctic conferred by long-range bomber operations during the Cold War led to establishment of early warning and air defense networks to defend against long-range bombers. For example, to counter the threat of Soviet bombers, the U.S. built several early-warning networks: the Pinetree Line, the Mid-Canada Line, and the Distant Early Warning Line, which was later extended to include the southern part of Greenland; commanded under the North American Air

²⁶ Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 24–25.

Defense Command (NORAD) after 1958.²⁷ The USSR established similar defensive measures to defend against US long-range bombers.

Although the development of ICBMs decreased reliance on long-range bombers, the Arctic has continued to be a military strategic corridor for long-range bombers, as both Russia and the U.S. rely on long-range bombers as part of their respective nuclear deterrence forces. Therefore, the Arctic continues to be of key military significance. Additionally, the Arctic is of specific importance to Russian long-range aviation, as the Arctic is the only outlet into international airspace with direct access to the North Atlantic. Sovereign airspace surrounds Russia on 2-3 sides. After a pause of 15 years, in 2007 Russia resumed regular long-range bomber patrols in the Arctic and Pacific, and since then there has been an increase in the number of patrols.²⁸ Russian long-range bomber patrols peaked in 2014 with more than 100 NATO intercepts of Russian aircraft.²⁹ For example, on the 28th to the 29th of October 2014 NATO intercepted no less than 19 Russian aircraft, herein TU-95 *Bear* bombers, Il-76 *Midas* tankers, and MiG-31 *Foxhound* long-range fighters, operating near NATO airspace through the Arctic, flying as far south as the coast of Portugal, while Russian aircraft simultaneously operated close to NATO airspace in the Baltic Sea and the Black Sea.³⁰ Therefore, Russian reliance on the Arctic for long-range aviation operations confers military strategic importance to the Arctic today, as international airspace in the Arctic is the only outlet to the North Atlantic where Russia can project power by flying close to European NATO airspace as in 2014.

²⁷ Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 26.

²⁸ Zysk, "Military Aspects of Russia's Arctic Policy," 86.

²⁹ SHAPE Public Affairs Office, "NATO Tracks Large-Scale Russian Air Activity in Europe," *NATO Allied Command Operations*, accessed February 26, 2015, <http://www.aco.nato.int/nato-tracks-largescale-russian-air-activity-in-europe.aspx>.

³⁰ SHAPE Public Affairs Office, "NATO Tracks Large-Scale Russian Air Activity in Europe."

Missile technologies in the form of ICBMs, ALCMs, SLBMs, and anti-ballistic missile defenses have conferred military strategic importance to the Arctic. First, as argued above, the shortest distance between Russia and North America is over the Arctic; thus, trajectories of ICBMs would pass over the Arctic in the event of nuclear war. Second, missile technologies have caused both Russian and U.S. ground based ballistic missile early warning systems to be placed in or near the Arctic to provide warning and attack assessment of ballistic missile attacks. For example, two sites in the US Ballistic Missile Early Warning System (BMEWS) designed to provide warning and attack assessment of attacks against the U.S. and Canada are located in the Arctic at Clear AFS, Alaska, and Thule AB, Greenland; supplemented by a site at RAF Fylingdales, United Kingdom.³¹ In the Arctic, Russia is planning to update present ballistic missile early warning systems in Olenogorsk, in the Kola Peninsula and in Pechora in the Komi Republic, south of the Barents Sea to the new *Voronezh-DM* radar.³² In addition to early warning, the U.S. and the USSR during the Cold War developed Anti-Ballistic Missile (ABM) systems. However, widespread deployment of ground-based interceptor systems was prevented by the 1972 ABM treaty. Consequently, only the USSR fielded and Russia continues to operate, an ABM system; the ABM-3 system, for protection of Moscow.³³ The U.S. withdrew from the ABM treaty in 2002. Today the U.S. operates a ground-based interceptor complex as part of the US Ballistic Missile Defense System at Fort Greely, Alaska.³⁴

Third, SLBMs confer military significance to the Arctic, as argued above, due to Russian continued reliance on the Arctic for protection

³¹ Air Command and Staff College, *Space Primer* (Maxwell Air Force Base, AL: Air University Press, 2009), 253–254.

³² *IHS Jane's Sentinel Country Risk Assessment. Russia & the CIS*, vol. 33 (Alexandria, VA: IHS Global, 2013), 434.

³³ Dolman, *Astropolitik*, 159–160.

³⁴ Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 148–149.

under the ice cap and in bastions protected by the surface fleet and naval air arm. To counter this threat, the PAVE Phase Array Warning System (PAVE PAWS) and the Perimeter Acquisitions Radar Attack Characterization System (PARCS), are in place to provide early warning of SLBM attacks against the U.S. and Canada, for example, by SSBNs in the Arctic.³⁵ For Western Europe this is provided by the BMEWS sensor at RAF Fylingdales, whose primary mission is early warning of IRBM, MRBM, and SLBM launches against Western Europe.³⁶

Fourth, Air Launched Cruise Missiles (ALCM) have enabled both U.S. and Russian long-range bombers to launch missiles at safe distance from in-place early warning and air-defense systems. Therefore, the Arctic has renewed importance as a corridor for operations of ALCM-armed long-range bombers. With the advent of ALCMs in the 1980s, this was seen as a major risk, as an ALCM-armed enemy could launch a surprise attack with little to no notice via the Arctic, due to the difficulty in tracking ALCMs.³⁷ This, and the obsolescence of the DEW-line in the 1980s, led to upgrades of the DEW-line and establishment of the North Warning System providing surveillance of the U.S. and Canadian Northern frontiers under NORAD control.³⁸ Thus, the Arctic is of continued military significance as both a corridor for ALCM long-range bomber operations and for early warning and strategic air defense against this threat.

Nuclear weapons confer military strategic importance to the Arctic, because the Arctic theatre of operations is crucial to both U.S. and Russian nuclear deterrence. Deterrence credibility rests on the assured capability to employ nuclear weapons against each other, which primarily is via the Arctic. This is because the shortest distance in

³⁵ Air Command and Staff College, *Space Primer*, 254–255.

³⁶ Air Command and Staff College, *Space Primer*, 254.

³⁷ Barry Scott Zellen, *Arctic Doom, Arctic Boom: The Geopolitics of Climate Change in the Arctic* (Santa Barbara, CA: Praeger, 2009), 79–80.

³⁸ Zellen, *Arctic Doom, Arctic Boom*, 79–80.

employment of nuclear weapons between the U.S. and Russia, by the primary delivery vehicles, ICBM, ALCMs from long-range bombers, and SLBMs from SSBNs, is through the Arctic. With the exception of, so-called tactical nuclear weapons, Russia in particular is relying on the Arctic as their ICBMs, long-range bombers, and SSBNs use the Arctic as a corridor or an area of operations. Arctic sea ice and/or naval protected bastions allows Russian SSBNs to operate with impunity from ASW.

Changes in Russian Military Posture in the Arctic

The fourth factor indicating increased military significance of the Arctic, is an increased Russian military presence in the Arctic. Five indicators point at this. First, although slow and needed due to decay since the end of the Cold War, Russia is modernizing the Northern Fleet, their largest stationed primarily in Severomorsk on the Kola Peninsula in the Arctic.³⁹ Despite declared grand plans of new carriers and refurbishment of more *Kirov*-class nuclear powered missile cruisers, modernization so far has primarily been in submarines and more modest surface vessels.⁴⁰ For example, the Northern Fleet has received a frigate of the new *Admiral Gorshkov*-class in 2014, which marks the largest Russian surface vessels to be put to sea in 15 years; more vessels of this class are under construction.⁴¹

Second, Russia has established or re-opened airfields in the Arctic and has plans to open more. For example, four airfields have already been re-opened at Nova Zemelya, Naryan-Mar, Graham Bell Island, and Rogachyovo, and up to ten more are projected to be established.⁴² While often claimed as a merely symbolic act of commitment to the Arctic, an

³⁹ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 119–124.

⁴⁰ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 120–122.

⁴¹ Atle Staalesen, "New Frigate on the Water," *Barentsobserver*, November 24, 2014, <http://barentsobserver.com/en/security/2014/11/new-frigate-water-24-11>.

⁴² Gareth Jennings, "Russia to Build More Arctic Airfields," *IHS Jane's Defence Weekly*, January 12, 2015, <http://www.janes.com/article/47831/russia-to-build-more-arctic-airfields>.

increased number of airfields gives Russia increased access to and ability to operate in the Arctic, thereby critically supporting military operations in a harsh and desolate part of the world, which air power makes more accessible. Moreover, Russia has announced its first drone base in the Arctic at Anadyr, close to the Bering Strait and Canada.⁴³ Thus, Russia supplements its presence in the Arctic with modern ISR platforms.

Third, Russia is in force development of a number of dedicated Arctic brigades for operations in the Arctic.⁴⁴ For example, the 200th Independent Motorized Infantry Brigade has been attached to the Northern Fleet, and is being trained, organized, and equipped for Arctic operations. This unit is expected to be operational in 2015.⁴⁵

Fourth, Russia has increased its long-range aviation patrols in the Arctic as argued in the last chapter.

Fifth, in December 2014 Russia activated a new Joint Strategic Command responsible for the Arctic. The nucleus of the command is the Northern Fleet headquarters in Severomorsk in the Kola Peninsula, which will be expanded with control forces of all services for defense of the Russian Arctic.⁴⁶

Summary.

As argued above, the Arctic is of increased military significance. This can be attributed to change in four primary variables. First, change in the relations between Russia and NATO to a post-Cold war low, due to the annexation of Crimea and continued Russian support to rebels in

⁴³ Damien Sharkov, "Russia to Open Arctic Military Drone Base 420 Miles off the Alaskan Coast," *Newsweek*, November 13, 2014, <http://www.newsweek.com/russia-open-arctic-military-drone-base-420-miles-alaskan-coast-284240>.

⁴⁴ Laruelle, *Russia's Arctic Strategies and the Future of the Far North*, 127.

⁴⁵ Trude Pettersen, "Russian Arctic Brigades Put off to 2015," *Barentsobserver*, February 22, 2012, <http://barentsobserver.com/en/topics/russian-arctic-brigades-put-2015>.

⁴⁶ Bruce Jones, "Russia Activates New Arctic Joint Strategic Command," *IHS Jane's Defence Weekly*, December 1, 2014, <http://www.janes.com/article/46577/russia-activates-new-arctic-joint-strategic-command>.

eastern Ukraine, as well as to the Russian invasion of Georgia in 2009 and cyberattacks against Estonia in 2009. Moreover, Russia declared NATO a primary threat in its 2014 military doctrine, and NATO has suspended cooperation with Russia. As a consequence of events in Ukraine and Crimea, NATO has refocused on collective defense of its borders with Russia. Second, because of the change in the Arctic physical environment as argued in chapter two. Third, technological change and existing technologies enabling military operations in the Arctic confers military significance as well. Herein, maritime technologies such as icebreaking, nuclear submarines, and maritime nuclear propulsion, all of which open the Arctic as an area of military operations, including utilization of strategic SLOCs for redeployment of forces from the North Atlantic to the Pacific. Moreover, aerospace technologies, such as the aircraft, missile technologies, and nuclear weapons, opens the Arctic as a corridor, and thus confers military significance to the Arctic. Finally, Russia's changed military posture in the Arctic confers increased military significance, due to modernization of the Northern Fleet, force development of Arctic capabilities, such as the activation of a Joint Strategic Command, specialized Arctic brigades, opening of airfields, and a drone base, and increased activity of long-range aviation. All these indicates increased Russian presence and preparation of the operational area for operations. The increased military and economic significance of the Arctic in a context of weak intergovernmental frameworks and divergent state interests indicates an environment of geostrategic opportunities and conflict potential which is examined next.

Chapter 4

Geostrategic Opportunities and Conflict Potential

*What the Aegean Sea was to classical antiquity,
what the Mediterranean was to the Roman world,
what the Atlantic Ocean was to the expanding
Europe of Renaissance days, the Arctic Ocean is
becoming to the world of aircraft and atomic power.
-Hugh Llewelyn Keenleyside, 1949*

*Who controls the Rimland, controls Eurasia, who
controls Eurasia controls the destiny of mankind
-Nicolas J. Spykman, "The Geography of the
Peace", 1944*

Increased military significance, interstate friction and conflict in the Arctic is not a return to the Cold war. However, it marks a divergence from the post-Cold War insignificance of the Arctic. Changes will provide Russia and the Arctic littoral states with economic opportunities and challenges, increased military significance as well as geostrategic opportunities, and conflict potential which is examined below. I argue that the changes in the Arctic provide three parallel geostrategic opportunities: first, Russia as a rising sea power; second, the Arctic as a Rimland; last, the Arctic as a strategic crossroad, a modern day Mediterranean. Moreover, I argue that the security challenge in the Arctic is management of the risk of conflict with Russia, either as a result of spill-over from conflict in Europe or escalation of an in-theatre conflict over territory and rights to resource extraction. Lastly, I argue that four potential areas of conflict persist: first, four classical geostrategic perspectives are laid out; second, two contemporary perspectives are presented; third, a resultant of three parallel geostrategic perspectives is argued; fourth, general conflict potential is argued and four potential scenario's based on geography and inter-state disputes are laid out.

Four Classic Geostrategic Perspectives

Geopolitics and Security in the Arctic edited by Rolf Tamnes and Kristine Offerdal, professors at the Norwegian Institute for Defence Studies, offers four classic geostrategic perspectives to analyze the Cold War.¹ This framework is here used to analyze two geostrategic perspectives on the Arctic future by Caitlin Antrim and Barry Zellen, in order to extract a resultant geostrategic projections for the future of the Arctic. The four classical geostrategic perspectives are briefly outlined below, as the two contemporary perspectives are based on elements of classical geostrategic thinking.

Mahan and Sea Power

Alfred Thayer Mahan, naval officer and the sea power theorist *par excellence*, provides two concepts of primary relevancy to the Arctic: primacy of sea power for prosperity of the state and sea control based on control of strategic chokepoints for control of sea lines-of-communications. In *The Influence of Sea Power Upon History 1660-1783*, Mahan lays out the argument that sea power is a primary cause of national growth and prosperity, based on an analysis of the rise of the British Empire in the age of sail. He extrapolates this theme to the U.S in the age of steam.² Mahan argues, that a nation's sea power is based on six elements enabling the nation to be seafaring: geographical position, physical conformity, extent of territory, number of population, national character, character and policy of governments.³ The second concept from Mahan is control of the primary sea-lines-of-communication by control of key maritime chokepoints. To Mahan control of the sea lines-of-communication and the ability to interrupt the

¹ Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 22–23.

² Mahan, Alfred Thayer, *The Influence of Sea Power Upon History, 1660 - 1783* (Reprint, Mineola, NY: Dover, 1987).

³ Mahan, Alfred Thayer, *The Influence of Sea Power Upon History, 1660 - 1783*, 28–58.

enemy's sea lines-of-communication is key to the life of the nation, especially for sea powers such as Britain and the U.S..⁴ Strategic maritime chokepoints are key to control, as the sea in general is navigable in all directions, but some sea lines-of-communications are more used than other and converge at strategic narrows, strategic chokepoints, which can be used to control the sea lines-of-communications.⁵ Thus, rather than controlling all of the navigable sea, which is undesirable, if not merely impossible, sea control can be established over the strategic sea-lines-of-communication for military and commercial purposes by control of key geographical chokepoints.

Sir Halford Mackinder and Land Power

Second, Sir Halford Mackinder, British imperial geographer and geostrategist, provides three elements: the Heartland thesis, the Arctic as a barrier, and the core strategic relationship between domination and control. Mackinder argued, based on the advent of steam railroads that the epoch of sea power was coming to an end and land power would take primacy.⁶ Central to Mackinder's thinking is the Heartland thesis, which is based on a Heartland, a geographical pivot of history, a large Eurasian core impenetrable by sea power, rich in resources, territory, and population.⁷ If unchecked, this Heartland in the age of railroads could dominate the world.⁸ Mackinder identified Eastern Europe as the gateway to control of the Heartland, summarizing his thesis as: "Who

⁴ Mahan, Alfred Thayer, *The Problem of Asia and Its Effect upon International Policies* (Boston, MA: Little, Brown, and Company, 1900), 124–127.

⁵ Mahan, Alfred Thayer, *The Influence of Sea Power Upon History, 1660 - 1783*, 25; Dolman, *Astropolitik*, 33–36.

⁶ Mackinder, Halford J., "The Geographical Pivot of History," *The Geographical Journal* 23, no. 4 (April 1, 1904): 432–436; Dolman, *Astropolitik*, 39.

⁷ In 1904 termed the "Pivot area" in Mackinder, Halford J., "The Geographical Pivot of History"; In 1919 fully developed, and termed "Heartland" in Mackinder, Halford J., *Democratic Ideals and Reality*, NDU Press Defense Classic Edition (Washington, DC: National Defense University Press, 1996); Dolman, *Astropolitik*, 39–41.

⁸ Mackinder, Halford J., "The Geographical Pivot of History," 434–437; Dolman, *Astropolitik*, 39–41.

rules East Europe commands the Heartland: Who rules the Heartland commands the World-Island: Who rules the World-Island commands the World.”⁹ Mackinder viewed the Arctic as an impenetrable barrier protecting the Heartland to the North.¹⁰ In addition, Mackinder provided the core geostrategic tenet “that if a state desired control of global affairs but could not physically occupy the critical keys to geodetermined power, then it must deny control of those areas to its adversaries.”¹¹ Thus, if control cannot be achieved, a nation should deny others control as well, in Mackinder’s case this was applicable to Eastern Europe as a buffer between the states of the inner crescent and the Heartland.

Spykman and the Rimland Thesis

Third, Nicolas J. Spykman, Dutch-American scholar and geostrategist, further developed MacKinder’s Heartland thesis into what has become known as the Rimland thesis.¹² Spykman agreed with MacKinder about a Eurasian heartland, but emphasized what MacKinder called the inner crescent, but which Spykman termed the Rimland. Consequently, he softened MacKinder’s stance on sea power vs. land power and conceptually developed the Heartland thesis to his own Rimland thesis: “Who controls the Rimland rules Eurasia. Who rules Eurasia controls the destinies of the World.”¹³ Notably, the Rimland thesis formed part of the conceptual framework for NSC-68, which shaped the US Cold-War grand strategy of containment of the USSR.¹⁴

⁹ Mackinder, Halford J., *Democratic Ideals and Reality*, 102; Quoted in Dolman, *Astropolitik*, 41.

¹⁰ Mackinder, Halford J., *Democratic Ideals and Reality*, 54–55; Emmerson, *The Future History of the Arctic*, 105.

¹¹ Dolman, *Astropolitik*, 41.

¹² Bert Chapman, *Geopolitics: A Guide to the Issues*, Contemporary Military, Strategic, and Security Issues (Santa Barbara, CA: Praeger, 2011), 23.

¹³ Nicholas J. Spykman, *The Geography of the Peace* (New York, NY: Harcourt, Brace and Company, 1944), 43; Quoted in Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 23.

¹⁴ Offerdal and Tamnes, *Geopolitics and Security in the Arctic*, 23.

Air Power Theorists

Fourth, air power theorists have provided the idea of the Arctic as a strategic corridor.¹⁵ Giulio Douhet, the air power theorist, in *The Command of the Air* presents the idea that aircraft are not bound by the topography of the land, thereby range arcs are important, not conformity to land topography.¹⁶ Moreover, Douhet argues that certain air routes are identifiable as important crossroads in the air supported by airfields at key points.¹⁷ He argues that Italy will be the air crossroads of the Mediterranean, due to the geophysical shape of Italy.¹⁸ Alexander De Seversky, entrepreneur and air power advocate, provides the idea of the Arctic as a strategic corridor, which he depicted by use of a azimuthal equidistant map (for examples of this projection, see Figure 1 and Figure 3, or Appendix) instead of a standard Mercator projection, which centers the earth on the North Pole, and depicts how close the North American and the Eurasian landmass are.¹⁹ He used this to argue, among other ideas, for strategic air defenses of North America eventually realized in the DEW line.²⁰ Even “Billy” Mitchell, general and air power advocate *in extremis*, recognized the geostrategic importance of the Arctic, especially the geostrategic significance of Alaska.²¹

¹⁵ Emerson, *The Future History of the Arctic*, 105.

¹⁶ Giulio Douhet, *The Command of the Air* (Tuscaloosa, AL: University of Alabama Press, 2009), 89–91; Dolman, *Astropolitik*, 43.

¹⁷ Douhet, *The Command of the Air*, 89–91; Dolman, *Astropolitik*, 43.

¹⁸ Douhet, *The Command of the Air*, 90; Dolman, *Astropolitik*, 43.

¹⁹ de Seversky, Alexander P., *Air Power: Key to Survival* (London: Herbert Jenkins, 1952), 55 and 145; Dolman, *Astropolitik*, 45.

²⁰ de Seversky, Alexander P., *Air Power: Key to Survival*, 151–155; Dolman, *Astropolitik*, 45.

²¹ Maj Kathleen A. Cooper, “North To Alaska: The Geostrategic Importance of the Last Frontier” (School of Advanced Air and Space Studies, 2012), 17; John Haile Cloe, *The Air Force in Alaska, Part I, Early Flights and Strategic Importance 1920-1940*. (Elmendorf AFB, AK: Office of History, Alaskan Air Command, 1983), 64.

Two Contemporary Geostrategic Perspectives on the Arctic

As argued in chapter two, the Arctic has vast economic opportunities, enabled by changing geography and technology, primarily in resource extraction of non-renewable resources, such as hydrocarbons, minerals, and rare-earth elements, and renewable resources such as fisheries. Moreover, shipping both trans-Arctic and intra-Arctic has vast potential to reduce reliance on southern routes. Aside from the obvious economic opportunities in the Arctic, two different geostrategic opportunities arise.

First, Caitlin Antrim²² in a 2010 Naval War College Review lead Article, *The Next Geographical Pivot: The Russian Arctic in the Twenty-First Century*, argues that changes in the Arctic over time will transform Russia from a land power into a powerful sea power of the Rimland, with the Russian Arctic as a new geographical pivot.²³ This is based on the idea that technological, climatic, economical and judicial change over time will remove the Arctic as an impenetrable barrier, which in classical geostrategic views of i.e. Mahan, Spykman, and Mackinder, contains Russia as a land power, alongside maritime chokepoints and control of the inner crescent or Rimland.²⁴ This change will give Russia access initially to the Arctic Ocean and secondarily the world oceans.²⁵ Thereby, she argues Russia will develop from a land power to a maritime power. In addition, Antrim emphasizes that receding sea ice and technology will enable the utilization of the Ob, Yenisei, and Lena rivers and their watersheds, each the size of the Mississippi watershed, for transport and economic development of the presently inaccessible

²² Executive director of the Rule of Law Committee for the Oceans and expert on UN Convention on the Law of the Sea and Arctic issues.

²³ The version used here is this, Caitlyn L. Antrim, "The Russian Arctic in the Twenty-First Century," in *Arctic Security in an Age of Climate Change*, ed. James Kraska (New York, NY: Cambridge University Press, 2013), 107–108; For the original article, see Caitlyn L. Antrim, "The Next Geographical Pivot: The Russian Arctic in the Twenty-First Century," *Naval War College Review*, Summer 2010, 63, no. 3 (n.d.): 15–37.

²⁴ Antrim, "The Russian Arctic in the Twenty-First Century," 108–117.

²⁵ Antrim, "The Russian Arctic in the Twenty-First Century," 128.

Russian heartland, releasing areas of immense untapped economical potential in the Russian interior – the heartland in classical geostrategic thought.²⁶

The second contemporary geostrategic view is by Barry Zellen, scholar and prolific author on Arctic issues, in his 2009 book *Arctic Doom, Arctic Boom: Geopolitics of Climate Change in the Arctic*. Zellen argues that the Arctic will turn from an isolated “Lenaland”, to a strategic Rimland.²⁷ Thereby, he combines concepts from both MacKinder and Spykman in his argument. Lenaland, according to MacKinder was an inaccessible region around the Lena river watershed in Siberia. Zellen reasons that opening of the Arctic Ocean would change it from an icy sea to a modern day Mediterranean of strategic, economic and military significance, and as a strategically important crossroad of the world.²⁸ This argument is based on an extension of Spykman’s Rimland thesis to the Arctic as the Arctic Ocean gradually becomes accessible. Furthermore, Zellen contends, partly resonant of Antrim’s wall analogy, that the ice covered Arctic was a Great Wall between North America and Eurasia during the Cold War.²⁹ This he bases on a deliberate downplay of the role of aerospace technologies and nuclear-submarine technologies, which confers military significance to the Arctic. For example, although he acknowledges the technological developments and key use of the Arctic for ICBMs, SSBNs, long-range aviation, and strategic air defenses. He discounts these developments based on an argument of the primacy of land power and irrelevance of air power theory in relation to the geostrategic role of the Arctic.³⁰ This, however, seems more as a reinforcement of his own argument on the inaccessibility of the Arctic, by discrediting the line of thought, which

²⁶ Antrim, “The Russian Arctic in the Twenty-First Century,” 110–125.

²⁷ Zellen, *Arctic Doom, Arctic Boom*, 157.

²⁸ Zellen, *Arctic Doom, Arctic Boom*, 146.

²⁹ Zellen, *Arctic Doom, Arctic Boom*, 14.

³⁰ Zellen, *Arctic Doom, Arctic Boom*, 36–40.

hold the Arctic as a strategic corridor either over the ice by aerospace technologies or under the ice by maritime technologies.

Resultant Geostrategic Opportunities

Antrim and Zellen's geostrategic projections provide useful geostrategic frameworks of the Arctic in the future. However, a composite geostrategic perspective, incorporating perspectives of both, will be used as a projection of the future geostrategic opportunities in the Arctic. This will consolidate the most applicable points and downplay/remove the more questionable aspects of their perspectives. First, the view of the Arctic as an extension of Spykman's Rimland underlines the increase in military and economic significance as argued in chapter two and three. Herein, the crucial role of the Arctic to Russia, both to ensure its status as a great power both economically and militarily. Therefore, the idea of the Arctic as part of the Rimland will be used. Second, Zellen's idea of the Arctic as a strategic corridor, a crossroad of the world comparable to the Mediterranean Sea of the classical era, is useful because it emphasizes the removal of ice as a barrier, whether physically or by application of aerospace and maritime technologies, to open the Arctic to both trans-arctic trade, military operations, and economic operations. Paradoxically, this is in line with the thinking of the air power theorists, which Zellen in his book goes to great lengths to discredit. Third, Zellen's emphasis on the ice covered Arctic as a Lenaland, and staunch emphasis on discounting the Arctic as a strategic corridor for air power, will be disregarded. This is because, Zellen uses "Lenaland" as a metaphor for an inaccessible area in general, rather than honoring MacKinder's original Lenaland as a specific inaccessible area in Siberia defined by the Lena River watershed. His metaphor is ill-suited because aerospace and maritime technologies opens the Arctic regardless of sea ice extension. Fourth, Antrim's idea of Russia as a potential sea power, due to changes in the Arctic, is in line with Mahan's concepts of the

primacy of sea power and elements of sea power. This is because Russia's economic future, and possibly great power status, is closely tied to the Arctic Ocean as argued in chapter two. Antrim underlines this, and so is in consonance with Mahan.

Changes in the Arctic improves three of Mahan's elements of sea power for Russia: *geographical position*, because Russia in addition to being a continental power, will have a vast useable coastline on the Arctic Ocean, no longer constrained by ice; *physical conformity*, because of Russia's Arctic coast line, established ports and facilities, and the rivers flowing to the Arctic Ocean provide a natural infrastructure by waterways; *extent of territory*, because the *useable* length of the coastline changes vastly through changes in the Arctic in relation to the size of the Russian population. Nevertheless, neither the length of the Russian coastline, nor the amount of Russia's total territory, does not actually change.

Fifth, while the Ob, Yensei, and Lena watersheds undoubtedly have vast territory, population and resources, Russian railroads have already opened these areas, as for example via the trans-Siberian railroad. Therefore, an opening to the Arctic is a *supplement* to existing access by road, rail, and air, which until now has not made the regions lucrative as predicted by MacKinder, and yet, the area has had utility to the USSR and Russia. Consequently, it is too early to predict how much more strategic importance will be conferred by opening of the waterways to the Arctic. Therefore, this unknown potential will not be included below.

By combination of both perspectives, the following three parallel projections of geostrategic opportunities conferred by the changes in the Arctic can be derived from the two contemporary perspectives examined above:

- 1) Russia as a potential sea power.

- 2) The Arctic as Rimland, by extension of Spykman's Rimland thesis to the Arctic.
- 3) The Arctic as a strategic crossroad, of military, economic, and political importance – similar to the Mediterranean Sea.

Conflict Potential: Spill-Over, Intra-Theatre, and Collective Defense

After examination of geostrategic opportunities, conflict potential is reasoned. As argued in chapter two, the Arctic holds vast natural resources in an area with several unresolved territorial disputes between NATO members and Russia. The future great power status of Russia is based on revenues from resource extraction in the Arctic, an area with weak inter-governmental regimes to settle disputes and divergent state interests. This indicates conflict potential over territory, rights to resource extraction, and divergent state interests. Nevertheless, conflict is not inevitable. The primary security challenge to NATO in the Arctic is managing the risk of conflict with Russia in the Arctic, either as a result of spill-over from an extrinsic conflict or as escalation of an in-theatre conflicts over territory and rights to resource extraction.

The first risk of conflict in the Arctic is a spill-over of an extrinsic conflict between NATO and Russia. If the changed geopolitical environment in Europe, as argued in chapter three, continues to deteriorate, a military conflict between Russia and NATO in Eastern Europe could be the result. For example, the present conflict in Ukraine could escalate as a result of direct NATO involvement or overt military support to Ukraine. Russia could interpret this as an escalation of the conflict, to which Russia could seek to match escalation by probing NATO's resolve to defend the small NATO-members directly bordering Russia: Estonia, Latvia, or Lithuania. Estonia and Latvia have large

Russian minorities, approximately 25% of their population.³¹ Moreover, both have areas where ethnic Russians are a majority. Russia could exploit this to instigate public unrest in a cloak of *maskirovka* as seen in Ukraine or Crimea, which could further escalate to armed conflict or invasion as seen in Georgia in 2009. This escalation would be a direct NATO-Russia conflict which could spill-over to the Arctic, due to Russian military presence and reliance on the Arctic as well as Russian strategic interest in the Arctic.

The second risk of conflict is escalation of conflicts over rights to territory and resource extraction in the areas of divergent state interest identified in chapter two. In 1693, France and the Netherlands fought the northernmost naval battle in recorded history at Sorgfjord in Svalbard over the use of Svalbard as a station for whaling.³² Whale blubber, the primary resource extracted from whaling then, was a major source of oil for lamps. Thus, even at a time where sea ice was not receding and technology was not nearly as conducive to operations in the Arctic, military confrontation over resources was a possibility. With the combination of growing economic prospects, increased commercial and military operations, as well as continued territorial disputes, the risk of intra-theatre conflict is bound to become more likely.

Both cases would be a military conflict in the Arctic between Russia and NATO members, and most likely NATO as an alliance. This is because any armed conflict between a NATO member and Russia would cause the NATO member to invoke NATO's Article Five – collective defense – calling on the aid of the rest of NATO to support the attacked member. This would risk further escalation to a general conflict between NATO and Russia or the collapse of NATO as a collective defense

³¹ Lt Col Donald Thieme, "Are the Baltics the Next Crimea?," *USNI News*, accessed March 10, 2015, <http://news.usni.org/2014/04/01/baltics-next-crimea>.

³² Anderson, *After the Ice*, 125–126.

organization, if support were not provided, as the credibility of NATO rests on its ability to collectively defend member states.

Four NATO-Russia Potential Conflict Areas in the Arctic

After examination of the two general risks of conflict spill-over and intra-theater war over territory and resources, and the consequences for collective defense in NATO, four specific NATO-Russia conflict areas are laid out based on the six unresolved territorial disputes from chapter two. The two intra-NATO disputes herein are not considered a conflict risk and will not be treated further.

The first potential conflict area is the territorial dispute over extending EEZ over the North Pole, primarily between NATO member Denmark and Russia, where a CLCS recommendation of territorial delimitation not in favor of Russian interests could lead Russia to refuse peaceful arbitration of the issue, and instead to use military force to compel Danish compliance with a desired Russian delimitation. Although the disputed area is the ice-covered Arctic Ocean, and therefore does not include any above sea-level land Russia still has overwhelming military capability to assert herself by sea or air.

The second potential conflict area is Svalbard, which, as argued in chapter two, has a long history of dispute over rights to extract resources between NATO member Norway and Russia, in an area regulated by the ambiguous Svalbard Treaty. A conflict is possible because of the relative short distance from Svalbard to the Russian mainland, especially the heavily militarized Kola Peninsula, home to the Northern Fleet and large contingents of forces of all military services. This situation favors projection of Russian military force into the disputed maritime area or even onto the Svalbard archipelago itself; which is demilitarized under the Svalbard treaty.

The third area of potential conflict is the straits along the Northern Sea Route, where the U.S. and Russia disagree over the status of the

straits, should the Northern Sea Route become a lucrative maritime or even military SLOC. Here Russia could seek to challenge the U.S. claim to freedom of the seas, by closing one or more of the straits, which act as maritime chokepoints. Thereby, Russia risks escalation to armed confrontation with U.S. forces in the Arctic, in an area geographically favoring Russia, due to relative proximity to the Russian mainland.

The fourth area of potential conflict is the delimitation of the Bering Sea and Chukchi Sea between Russia and the U.S, which in times of tension could be a source of military confrontation. However, this is unlikely, because the area is not easily accessible to Russia, due to the geographical proximity of Alaska, and thereby U.S. mainland and U.S. forces, which would be a tripwire for immediate U.S. response to any Russian aggression.

Although, the Arctic is of military significance to NATO, conflict between Russia and NATO is not inevitable in the Arctic, if NATO acknowledges the risk and manages the risk accordingly

Summary

As argued above, the changes in the Arctic and concurrent increased economic and military significance, have three parallel geostrategic perspectives, when viewed through the lenses of classical geostrategy applied to Caitlin Antim and Barry Scott Zellen's contemporary perspectives. First, Russia as a rising sea power; second, the Arctic as a Rimland, by extension of Spykman's Rimland thesis into the Arctic; third, the Arctic as a modern day Mediterranean, a strategic crossroad. Both the increased economic and military significance of the Arctic indicates conflict potential between NATO and Russia. As argued above, the first conflict risk is spill-over from NATO-Russia conflict in Europe. The second conflict risk is inter-state conflict in the Arctic over rights to resources or territorial delimitation. Both spillover and intra-theatre conflict would most likely cause the NATO member to invoke

collective defense, which would in turn result in a full NATO-Russia. Four specific disputes could become conflict areas: Danish-Russian dispute over EEZ extension over the North Pole, Norway-Russia over Svalbard and adjacent waters, U.S.-Russia over status of straits on the Northern Sea Route, and last and least likely U.S.-Russia over delimitation of both the Bering Strait and Chukchi Sea. While speculative, as many factors weigh in on the actual future of the Arctic, these geostrategic projections and specific conflict areas are challenges to the NATO alliance, which have to be managed with due diligence. Consequently, ramifications for NATO and elements of a NATO strategy for the Arctic are laid out in the next chapter.



Chapter 5

Ramifications for a NATO Strategy for the Arctic

If you want peace, prepare war, goes the Roman proverb, still much quoted by speakers preaching the virtues of strong armament. We are told that readiness to fight dissuades attacks that weakness could invite, thus keeping the peace. It is just as true that readiness to fight can ensure peace in quite another way, by persuading the weak to yield to the strong without a fight.

-Edward N. Luttwak, "Strategy: The Logic of War and Peace", 2001

It is impossible to predict the future, and all attempts to do so in any detail appear ludicrous within a few years.

-Arthur C. Clarke, 1962

While predictions of specific events in the future are impossible, and any attempt futile and suspect to later ridicule, identification of trends and weighing the possible outcomes based on indicators and warnings, and then planning accordingly is at the core of a sound strategic approach for continued advantage, especially when concerning a state's primary interest of security. Presently the NATO alliance lacks a strategy for the Arctic. In addition, alliance capability to operate in the Arctic has declined since the end of the Cold War. In this chapter, I argue that based on the prospects of increased economic and military significance, geostrategic perspectives, and conflict potential, NATO needs an Arctic strategy. Moreover, I lay out the necessary elements to ensure continued geostrategic advantage. First, NATO's lack of strategy and alliance diminished ability to operate in the Arctic are argued. Second, ramifications for NATO are discussed. Third, elements of a NATO strategy for continued advantage in the Arctic are laid out.

Lack of an NATO Arctic Strategy and Reduced Alliance Capability

While each of the Arctic littoral NATO-member states have national Arctic strategies, the NATO alliance lacks an Arctic strategy.¹ For example, in 2011 the Kingdom of Denmark issued a national Arctic strategy covering 2011-2020.² The lack of an alliance strategy for the Arctic, or even recognition of the Arctic as a security issue is apparent from NATO's present strategic concept and summit declarations since the new strategic concept went into effect in 2010. For example, NATO's present strategic concept "Active Engagement, Modern Defence" from 2010, which lays out NATO's present purpose, core tasks, the character of the security environment, does not mention the Arctic, or any other definition of the Arctic, nor does it include any indications of future Arctic inclusion.³ Further, neither, the Chicago declaration from the 2012 NATO summit nor the Wales declaration from the 2014 NATO summit have any mention of the Arctic.⁴ The only vague and indirect reference is a brief mentioning of climate change and resources as part of the elements shaping the future security environment in the strategic concept.⁵ However, this is a general statement applicable to security issues in any region in the world.

¹ National strategies of all the Arctic states are available at "Arctic Strategy Documents," *GeoPolitics in the High North*, accessed March 22, 2015, http://www.geopoliticsnorth.org/index.php?option=com_content&view=article&id=84&Itemid=69&showall=1.

² Ministry for Foreign Affairs Denmark, "Kingdom of Denmark Strategy for the Arctic 2011-2020," August 22, 2011, <http://um.dk/en/~media/UM/English-site/Documents/Politics-and-diplomacy/Greenland-and-The-Faroe-Islands/Arctic%20strategy.pdf>.

³ "Strategic Concept 2010," NATO, accessed March 5, 2015, http://www.nato.int/cps/en/natohq/topics_82705.htm; Brooke A. Smith-Windsor, "Putting the 'N' Back into NATO: A High North Policy Framework for the Atlantic Alliance?," Research Paper (NATO Defence College, Rome: NATO Defence College, July 2013), 3, <http://www.ndc.nato.int/download/downloads.php?icode=381>.

⁴ "Chicago Summit Declaration Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Chicago," NATO, May 20, 2012, http://www.nato.int/cps/en/natolive/official_texts_87593.htm; "Wales Summit Declaration."

⁵ See section 15 in "Strategic Concept 2010."

Although, a 2009 NATO conference in Reykjavik, Iceland, named “Security Prospects in the High North”, sought to renew alliance interest and role in the Arctic, the NATO alliance has not focused on the Arctic.⁶ The main antagonist is Canada, who since 2009 has prevented NATO engagement with the Arctic as a security issue.⁷ The Canadians maintain there is a lack of a military threat in the Arctic. There is also a strong emphasis on Canadian sovereignty under the present prime minister Harper. This stance on lack of military challenges in relation to NATO is contradictory to Canada’s emphasis on national rearmament in the Arctic in accordance with their 2009 “Northern Strategy”, as well as Canada’s focus on Arctic security and defense in tri-command cooperation between NORAD, U.S. Northern Command and the Canadian Joint Operations Command.⁸ In contrast, Norway has continuously promoted an increased role for NATO in the Arctic, and reaffirmed the need for active NATO involvement in the Arctic. For example, Norway sought to include a reference to the Arctic in the 2010 Lisbon summit declaration. However, Canada opposed this successfully, which prevented inclusion in the summit declaration.⁹

While the littoral Arctic NATO members have continued to field and operate Arctic capabilities, NATO as an alliance has not, and NATO’s overall Arctic capability has declined since the Cold-War. Some of the

⁶ Smith-Windsor, “Putting the ‘N’ Back into NATO,” 1–3; Notably, the 2009 Strassbourg/Kehl summit declaration stated (in section 60) “Developments in the High North have generated increased international attention. We welcome the initiative of Iceland in hosting a NATO seminar and raising the interest of Allies in safety- and security-related developments in the High North, including climate change.”, see “Strasbourg / Kehl Summit Declaration Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Strasbourg / Kehl,” NATO, April 4, 2009, http://www.nato.int/cps/en/natolive/news_52837.htm.

⁷ Smith-Windsor, “Putting the ‘N’ Back into NATO,” 4.

⁸ Smith-Windsor, “Putting the ‘N’ Back into NATO,” 4.

⁹ Helga Haftendorn, “NATO and the Arctic: Is the Atlantic Alliance a Cold War Relic in a Peaceful Region Now Faced with Non-Military Challenges?,” *European Security* 20, no. 3 (September 2011): 347.

Arctic littoral states have focused their capabilities on and in the Arctic.¹⁰ For example, Norway has focused its military forces in Northern Norway, including a new national joint headquarters. Canada, under prime minister Harper, has announced, albeit not completed, a rearmament program focused at the Arctic. Denmark has stood up a small Arctic Joint Command, and has announced Danish reemphasis on the Arctic in the last two defense agreements, which governs the tasks, structure, funding, and overall layout of the Danish Armed Forces. However, despite some national emphasis on the Arctic; Canada, Denmark, and Norway have reduced their overall defense forces since the end of the Cold War, and drastically reduced relative defense spending, see Table 2 and Figure 4.

Since the end of the Cold War NATO's capability for operations in the Arctic as an alliance has declined. Primarily by reduction in number of active headquarters, de-militarization of Iceland by withdrawal of US forces in 2006, general reduction in relative defense spending in Canada, Denmark, and Norway, closure of NATO air surveillance radars, and general reduction in military manpower. This can be seen by five indicators. First, NATO no longer operates a combined joint headquarters in or near the Arctic. As part of the post-Cold-War NATO transformation, NATO command structure reviews have closed a large number of NATO headquarters. For example, NATO has closed its combined joint headquarters in Stavanger Norway; operational responsibilities have been taken over by Joint Force Command Brunssum in the Netherlands.¹¹ Moreover, the NATO Combined Air Operations Centre (CAOC), for command and control of air operations in

¹⁰ For a 2011 overview of NATO members' existing and planned capabilities for Arctic operations see, Haftendorn, "NATO and the Arctic," 344 and 345–352.

¹¹ Haftendorn, "NATO and the Arctic," 345.

Norway has been closed, as part of the drastic reduction of the number of CAOCs in NATO.¹²

Second, Canada, Denmark, and Norway have reduced their relative defense spending and presently do not fulfill the NATO defense spending goal. NATO's recommended military expenditure goal is 2% of GDP.¹³

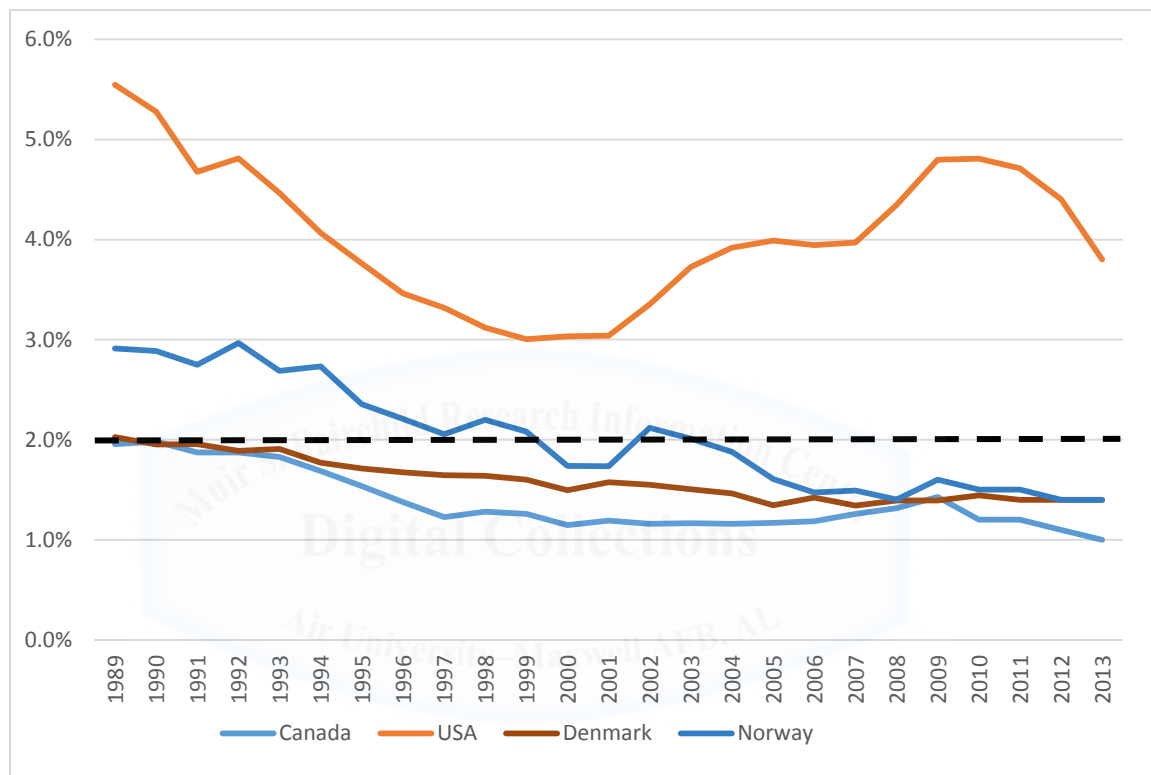


Figure 4: Military Expenditure as Percentage of GDP 1989-2013

Dashed line 2% of GDP (Source: figure based on data from "SIPRI Military Expenditure Database (1988-2013)," *Stockholm International Peace Research Institute*, http://www.sipri.org/research/armaments/milex/milex_database/milexdata1988-2012v2.xls)

¹² Flyvevåbnets Historiske Samling, *CAOC Finderup 1993-2013*, ed. Søren Falk-Portved (Karup: Flyvevåbnets Historiske Samling, 2013), 11-15, <http://www.flyhis.dk/CAOC%20Finderup%20til%20ebog.pdf>.

¹³ Steven Erlanger, "Europe Begins to Rethink Cuts to Military Spending," *The New York Times*, March 26, 2014, <http://www.nytimes.com/2014/03/27/world/europe/europe-begins-to-rethink-cuts.html>.

For example, as illustrated in Figure 4 above, while the U.S. has not been below 3% GDP in defense spending from 1989 to 2013, Canada and Denmark have not fulfilled the NATO military expenditure goal since 1991, and Norway not since 2004. In 2013 Canada spent as little as 1% of GDP on defense, whereas Norway and Denmark spent 1.4% of GDP.

Fourth, the Arctic littoral NATO-member states have reduced the size of their armed forces since the Cold War. While quantity has a quality of its own, manpower in itself is not the only variable indicating military capability for developed western states. However, manpower can serve as a baseline heuristic of military capability, because these states' manpower is equipped with more modern technology than their competitors. Used as a baseline heuristic, decrease in manpower indicates reduced military capability. For example, Norway and Denmark have abolished their relatively large mobilization-based reserves intended for territorial defense and reduced the overall number of active duty forces. Canada and the U.S. have retained reserves, however still reduced their military manpower significantly. See table 2 below for details.

Table 2: Comparison Military Manpower

Year	Forces	Canada	Denmark	Norway	U.S.
1991	Active	90,000	31,700	34,100	2,117,000
	Reserves	26,100	72,400	200,000	1,613,000
2015	Active	66,000	17200	25800	1,433,000
	Reserves	31,000	-	-	854,000

Figures are for active and first line reserves only, manpower of National Guard, home guard, and national militias have been excluded. (Source: table based on data from International Institute for Strategic Studies, *The Military Balance, 1990-1991* (London: Brassey's, 1990); International Institute for Strategic Studies, *The Military Balance 2015* (London: Routledge, 2015))

Fifth, early warning radars, part of the NATO Integrated Air Defence System (NATINADS) have been closed near the Arctic. For example, the long-range air surveillance radar on the Faroe Islands, was

closed as a consequence of the Danish “Defence Agreement 2005-2009”, thereby, degrading NATO surveillance of the Greenland-Iceland-UK (GIUK) and Greenland-Iceland-Norway (GIN) gaps.¹⁴

Finally, Iceland has become de-facto demilitarized. Thus, the key geographical chokepoint of the GIUK/GIN gap, which controls access to and from the Arctic Ocean from the North Atlantic, is without continuous military presence. During the Cold War, US forces were stationed in Iceland and provided maritime surveillance of the GIUK/GIN gap and air surveillance and control, as part of the NATINADS.¹⁵ However, the U.S. withdrew all forces from Iceland in 2006. Moreover, because Iceland does not have a military, air policing of Iceland and adjacent airspace is periodically performed by other NATO members on a rotational basis, comparable to the air policing mission undertaken by NATO members in the Baltic states.¹⁶

In sum, the NATO alliance’s capability to operate in and near the Arctic has declined since the end of the Cold War. Nevertheless, the Arctic is still covered by the North Atlantic Charter, which in combination with the deteriorated relations between NATO and Russia in Europe, notable security interdependence between Europe and the Arctic, and an increasing economic and military significance of the Arctic, underlines the need for an alliance strategy for the Arctic.

Ramifications for NATO

The Arctic is changing. Increased economic and military significance and projected geostrategic opportunities and challenges, as well as conflict potential, have ramifications for NATO. While the NATO-

¹⁴ “Danish Defence Agreement 2005-2009” (Danish Ministry of Defence, June 10, 2004), http://www.fmn.dk/eng/allabout/Documents/ENG_Forligstekst.pdf.

¹⁵ Einar Benediktsson, “At Crossroads: Iceland’s Defense and Security Relations, 1940-2011,” August 18, 2011, <http://www.strategicstudiesinstitute.army.mil/index.cfm/articles/Iceland-Defense-and-Security-Relations-1940-2011/2011/8/18>.

¹⁶ Benediktsson, “At Crossroads.”

member states have refrained from collectively addressing a vast area of growing strategic importance in the NATO alliance, the time has come for the NATO alliance to pay heed to a region of growing strategic relevancy within the area covered by the North Atlantic Charter. Recent events in Ukraine and Crimea, changes and prospects in the Arctic, and NATO's reemphasis on collective defense since the Wales summit, should mark the beginning of a return to the Arctic for the NATO alliance. To plan and execute this strategic shift, NATO needs an alliance strategy for the Arctic for seven primary reasons.

NATO needs an Arctic strategy because of the international structure of the Arctic region. In an Arctic regional structure of balanced bi-polarity, between the U.S., supported by Canada, Denmark, and Norway, who balances Russia, a NATO strategy can frame and direct the efforts of the U.S. and Arctic littoral NATO states to ensure a stable balance of power with Russia now and in the future. This is especially applicable as the European super-complex and Arctic sub-complex are interdependent in security matters by the merger of the European regional security complex and the Russian regional security complex over the conflict in Ukraine and Crimea. Consequently, relations with Russia have to be collectively managed both in Europe and in the Arctic, present NATO efforts after the Wales summit have focused primarily on Eastern Europe.¹⁷

NATO needs an Arctic strategy because of the increased economic significance of the Arctic. In order to take advantage of future lucrative economic opportunities of an Arctic ice free within the next four decades, and accessible by key technologies, NATO needs to provide its member states with a safe and secure Arctic environment, in which cooperation is

¹⁷ Nowhere in the summit declaration is the Arctic mentioned; however, in section 9, raised readiness and capabilities of Multinational Corps North East (in Poland) is, this indicates focus on NATO's Eastern European members, see "Wales Summit Declaration."

a more attractive alternative than resolution of conflicts by coercion. Moreover, because of Russia's key strategic economic interest in the Arctic, NATO needs to seek a position of advantage in an area with several territorial disputes between NATO members and Russia,

NATO needs an Arctic strategy because of the increased military significance of the Arctic. Events in Georgia, Estonia, Crimea, and Ukraine have demonstrated that Russia is willing and capable of exerting power in its near abroad. Unchecked Russian aggression against a NATO member state, in Europe or in the Arctic, would be a detrimental blow to the alliance. A NATO strategy for the Arctic can establish measures to prevent Russia from perceiving any utility in the use of military force, regardless of how shrewdly cloaked in *maskirovka* it is, against members of the NATO alliance in consonance with measures to meet Russian belligerence in continental Europe.

NATO needs an Arctic strategy because of the geostrategic prospects of the Arctic. Increased economic and military significance translates into future geostrategic perspectives of the Arctic. The geostrategic ramifications of the changes in the Arctic, primarily future prospects of Russia as a possible major sea power and the Arctic as a possible Rimland and/or a strategic crossroad, have to be addressed and managed in the NATO alliance in order to ensure continued advantage for the alliance in a changing geostrategic context. Failure to do so could render the alliance irrelevant or at serious disadvantage to rising powers in the region and risk destabilizing the present balanced bi-polarity.

NATO needs an Arctic strategy because of conflict potential in the Arctic. While conflict in the Arctic is not the most likely event due to the stability of balanced bi-polarity, the Arctic has conflict potential between NATO-member states and Russia, either as spill-over from escalation of events in Europe or intra-theatre conflict over resources or territory. An alliance strategy can ensure a concerted alliance effort to mitigate conflict risk, prevent or limit escalation, prepare the operational

environment in due time, and ensure continued NATO advantage if deterrence and diplomacy fails.

NATO needs an Arctic strategy because it presently does not have one. Lack of an NATO Arctic strategy is simply not tenable. Failure to address a vast region of growing economic, military, and geostrategic importance is a failure to ensure due diligence in planning and preparation. Moreover, it is a failure to prepare a key operational environment for continued advantage in a region in which four NATO member states have key interests, while facing a powerful regional great power, Russia, who has key strategic interest in the region too. Moreover, failure to develop and execute a NATO Arctic strategy now is a failure to provide the alliance with a broad set of options for the future, as lack of action and preparation will limit the range of alliance options for response to future crises or conflict in the Arctic.

NATO needs an Arctic strategy because its ability to operate in the Arctic as an alliance has declined. While out-of-area operations have dominated the first decade of the 21st century, the recent events in Ukraine, Crimea, Estonia, and Georgia are a stark reminder of the latent risk of inter-state war and conflict in Europe.¹⁸ A NATO strategy for the Arctic can ensure a satisfactory level of presence, surveillance, and operational capability to match risks and opportunities in a timely manner and provides NATO a broader range of options for specific security issues in the future Arctic.

In sum, NATO needs an Arctic strategy to manage risks and opportunities in the Arctic, by addressing the power structure, increased economic and military significance, national interests, and decline in alliance capability for operations in the Arctic. The elements of a daring NATO strategy for the Arctic, which addresses the risks and

¹⁸ Colin Gray argues deftly for the return of inter-state war in the 21st century in: Colin S. Gray, *Another Bloody Century: Future Warfare* (London: Phoenix, 2006), 382–383.

opportunities head on and seeks continued advantage in a changing region regardless of which of the geostrategic trends materializes is outlined next.

Elements of a NATO Strategy in the Arctic

The following recommendations of elements of NATO strategy depart from the 2010 strategic concept, and the Wales summit declaration, and provide both a broad strategic approach and elements of a plan for the NATO alliance, as well as the Arctic-littoral NATO-member states, to ensure continued advantage in the Arctic region. Strategy is here defined as “a plan for continued advantage.”¹⁹ This definition is useful, as it takes a very long view, infinite if stated boldly, and allows for different trends and futures to materialize; in contrast to a myopic focus on a sequence of actions/events. The definition does enable a multitude of possible futures in the Arctic region, and is consequently less prone to be useless or even utterly dangerous, as it does not attempt to predict a specific future.

Strategic Approach

The central part of a NATO strategy for continued advantage in the Arctic is the strategic approach itself, which sets the playing field on which NATO, by prudent planning and preparation, will execute the strategy. From the 2010 Strategic Concept, three continuing political aims of NATO can be extracted: collective defense, crisis management, and cooperative security.²⁰ The strategic approach must account for these continuing aims in the Arctic context, balanced bi-polarity, while the strategic approach must take developments in the larger European regional super-complex into account, as the Arctic sub-complex is

¹⁹ Everett C. Dolman, *Pure Strategy: Power and Principle in the Space and Information Age* (London; New York: Frank Cass, 2005), 6.

²⁰ In the text referred to as “essential core tasks” “Strategic Concept 2010.”

interdependent with Europe in security matters. The central strategic question consequently becomes: how can NATO achieve continued advantage in the Arctic?

The strategic approach recommended here is military containment combined with a restrained tit-for-tat strategy for cooperation in both the Arctic and Europe. Military containment is necessary to meet the aims of collective defense and military force required to balance Russian power in the Arctic. NATO containment should check and deter Russian threat of force, use of force, and/or subversion for territorial expansion. The internal structure of the Arctic region, balanced bi-polarity, consequently requires any threats from Russia has to be contained promptly and efficiently in order to maintain a stable balance of power in the region.²¹ However, due to the interdependency of the European super-complex and the Arctic sub-complex, containment has to be extended to the European super-complex as well. While NATO for years has expanded toward the borders of Russia, time has come for consolidation of the alliance both in Europe and the Arctic by military containment of Russia, due to Russia's military power and demonstrated willingness to use force to pursue interests, as presented in chapter four.

In order to pursue the political aims of crisis management and cooperative security, military containment should be combined with a tit-for-tat strategic approach to cooperation. Robert Axelrod, the political-scientist, in *The Evolution of Cooperation*, argues and demonstrates that in an iterated prisoner's dilemma, the best strategy for cooperation is tit-for-tat: to cooperate first and then, if the opponent chooses not to cooperate, duplicate the action of the other player's last move.²² The iterated prisoner's dilemma can be used as heuristic for cooperative relations in the Arctic due to the regional structure of balanced bi-

²¹ Mearsheimer, *The Tragedy of Great Power Politics*, 322–329.

²² Robert Axelrod, *The Evolution of Cooperation*, Rev. (New York, NY: Basic Books, 2006).

polarity between U.S.-Russia and their continued relationship. However, only as heuristic, as real life strategic decision making in international relations has many more relevant variables than can be grasped by the iterated prisoner's dilemma. Nevertheless, the tit-for-tat strategic approach to cooperation should be employed by NATO in general, because: "Its niceness prevents it from getting into unnecessary trouble. Its retaliation discourages the other side from persisting whenever defection is tried. Its forgiveness helps restore mutual cooperation. And its clarity makes it intelligible to the other player, thereby eliciting long-term cooperation."²³ Axelrod warns that the retaliatory element in tit-for-tat risks blood feuds. However, he advises modification of tit-for-tat with prudent restraint in retaliatory reciprocity in order to prevent these blood feuds.²⁴ As tit-for-tat is used as a heuristic and not an outright law, resultant practical NATO strategy and decisions should be cognizant of Axelrod's call for restraint in application of the tit-for-tat strategic approach to cooperation. Consequently, *restrained* tit-for-tat is the resultant approach for NATO.

In order to support this recommended strategic approach for continued advantage in the Arctic, NATO should devise and implement a plan with emphasis on the three recommended elements, which are laid out next: geostrategic control, deterrence and cooperation.

Geostrategic Control

The three geostrategic projections for the future of the Arctic laid out in chapter four provide trends, in which NATO should seek to maximize continued advantage, in consonance with the strategic approach, regardless of if one or all of the trends fully materialize in the

²³ Axelrod, *The Evolution of Cooperation*, 54.

²⁴ Axelrod, *The Evolution of Cooperation*, 138–139.

future, most likely within the next four decades, as the Arctic becomes more accessible either due to receding sea ice or through new technology.

First, NATO should immediately establish control of the primary maritime chokepoints in order to enable sea control of the Arctic Ocean. Primarily by control of chokepoints for control of the military and commercial SLOCs, as devised by Mahan, rather than persistent naval presence in the Arctic Ocean.²⁵ This can be achieved by control of two primary chokepoints: the Bering Strait and GIUK/GIN gap. While the U.S. is already militarily present in Alaska, the U.S. should permanently deploy dedicated military forces for surveillance and control of the Bering Strait in order to control SLOCs to and from the Pacific Ocean at the gateway to the Arctic. Russia continues to control their part of the Bering Strait, therefore the Bering Strait cannot be closed completely in peacetime. However, the mere ability of NATO to contest Russian control of their part of the Bering Strait, should be sufficient to limit any major non-NATO naval movement in crisis and conflict through the Bering Strait. During the Cold War, Iceland, in the middle of the maritime chokepoints of the GIUK/GIN gap, provided NATO with a maritime defense against Soviet incursion into the North Atlantic at the gateway to the North Atlantic protecting the trans-Atlantic SLOCs key to defense of Europe.²⁶ NATO should permanently deploy air and naval forces, primarily to Iceland, for surveillance and control of the GIUK/GIN gap to control SLOCs to and from the North Atlantic and North Sea by control of the gate to the Arctic. Control of the Bering Strait and GIUK/GIN gap should be supplemented by NATO capability to establish surveillance and control of the Nares Strait, between Canada and North-East Greenland, and the Lancaster Sound, for control of the North-West Passage, in order to complete control of trans-Arctic SLOCs. By control

²⁵ Dolman, *Astropolitik*, 33–36.

²⁶ Colin S. Gray and Roger W. Barnett, eds., *Seapower and Strategy* (Annapolis, MD: Naval Institute Press, 1989), 305.

of the two major maritime chokepoints, supplemented with control of the two minor straits, NATO controls the trans-Arctic SLOCs, except for the Northern Sea Route as an internal mode of transport, and has the ability to limit the movement of Russian naval forces in the Arctic Ocean in times of crisis and conflict. Consequently, NATO contains Russia in the Arctic and has readily established advantage over Russia, even if it becomes a major sea power, while NATO has ensured relative freedom of action for naval forces to and from the Arctic Ocean by control of the key chokepoints.

Second, NATO should consolidate its presence in Eastern Europe in order to contain any Russian attempts to infringe on NATO territory. NATO's objective should be for Eastern Europe to remain a geostrategic area under control of neither Russia nor NATO, but to be stabilized as a divided Rimland between NATO-member states and Russia. This is in consonance with the geostrategic tenet of MacKinder: to ensure that positions of key geostrategic significance are contested if they cannot be controlled.²⁷ In parallel, NATO should gradually increase NATO military presence in the Arctic in order to contain any Russian attempts to infringe on NATO territory or resolve disputes by force in the Arctic. By military presence and focus on containment in both Europe and the Arctic, NATO would be in a position of advantage if the Arctic develops as an extended Rimland.

Third, NATO should prepare the Arctic as a theatre of military operations, in order to ensure continued advantage of the Arctic as a strategic crossroad, subsequently as an extended Rimland and to support containment of Russia. Eric M. Bergerud, the historian, in *Fire in the Sky*, argues that the importance of the South Pacific in WWII, was not what was *in* the South Pacific but what *control* of the area could

²⁷ Dolman, *Astropolitik*, 41.

accomplish.²⁸ This is parallel to the perspective of the Arctic as a strategic crossroad, as control of the Arctic has key importance to both Eurasia and North America for military operations and enables trans-Arctic shipping. In addition, Bergerud argues that bases and lines-of-communications between them, in the very austere physical environment of the South Pacific, were key to success for operations in the South Pacific.²⁹ This is parallel to the Arctic as well, as the environment, regardless of sea ice or not, remains very austere and harsh.

Consequently, NATO should prepare the Arctic as a theatre of military operations. First and foremost by re-militarization of Iceland with permanent forward deployment of NATO forces and expansion of military facilities on Iceland to provide a major hub for force projection into the Arctic. Iceland's geographical position at the gate of the Norwegian Sea and Greenlandic Sea with easy access to and from the Arctic Ocean makes it vital. Second, re-establishment of a dedicated NATO combined-joint headquarters for the Arctic, with persistent air and maritime surveillance, C4ISR facilities and networks, adequate basing and logistical structure to support combined-joint military operations in the Arctic. Third, preparation of forward staging and logistical areas with prepositioned materiel and supplies for rapid deployment of dedicated NATO forces into the Arctic. Fourth, preparation of facilities should utilize hardened facilities as well as dispersal in order to maximize survival of deployed forces in crisis and conflict.

In sum, NATO should establish control of the primary maritime chokepoints of the Arctic Ocean, ensure adequate military presence in Eastern Europe and the Arctic, and prepare the Arctic as a theatre of military operations in order to be in a position of continued advantage in face of the three projected geostrategic Arctic futures.

²⁸ Eric M Bergerud, *Fire in the Sky: The Air War in the South Pacific* (Boulder, CO: Westview, 2001), 5.

²⁹ Bergerud, *Fire in the Sky*, 6–10.

Deterrence

NATO should focus on establishment of credible conventional deterrence, based on credible nuclear deterrence, in order to prevent Russia from perceiving any utility in the use of force in the Arctic. As well as to mitigate conflict risk, limit escalation, and ensure continued advantage if deterrence fails. Deterrence is here defined as laid out by Thomas C. Schelling, the economist, in *Arms and Influence*, as influence on the adversary's intentions, in order to convince the adversary not to do something.³⁰ Accordingly, deterrence is well suited to seek continued advantage because it is indefinite in its time horizon. After establishment of deterrence, you wait, if deterrence works, you continue to wait.³¹ In other words, rather than seeking short term advantage by pursuit of a definite objective, NATO should pursue an indefinite objective of Russian inaction by deterrence.

Credible nuclear deterrence by the U.S. and subsequently the NATO alliance is the foundation for any conventional deterrence efforts by NATO in the Arctic and continental Europe. This is because credible nuclear deterrence can prevent escalation beyond the nuclear threshold, the level of conflict where nuclear weapons are used or threatened to be used. There would be no utility in Russian escalation beyond this threshold as the costs would be too great and/or the likelihood of success too low, dependent on the specific nuclear strategy. Herman Kahn, the prolific theorist and futurist, defines escalation dominance as "a capacity, other things being equal, to enable the side possessing it to enjoy marked advantages in a given region of the escalation ladder."³²

³⁰ Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2008), 36–77.

³¹ Schelling, *Arms and Influence*, 71–72.

³² Herman Kahn, *On Escalation: Metaphors and Scenarios*, Hudson Institute Series on National Security and International Order. (New York, NY: Frederick A. Praeger Inc., 1965), 289–291.

Therefore, the U.S. and NATO should seek escalation dominance above the nuclear threshold by fielding a broad range of nuclear capabilities and demonstrated resolve in order to limit conflict to stay below the nuclear threshold. Thereby, the U.S. and NATO can seek to deter conflict in the Arctic to stay below the nuclear threshold and prevent adversaries from pursuing advantage in conflict by the threat of nuclear weapons. However, conventional deterrence is needed to deter conventional conflict which is next.

NATO should establish credible conventional deterrence in the Arctic, by focusing on denying any Russian perceived benefit from the use or threat of force in the Arctic. Conventional deterrence by denial is based on “the ability to prevent an adversary from achieving its objectives through conflict.”³³ This is achieved by manipulating the likelihood of the adversary’s desired objectives quickly and inexpensively by force.³⁴ Consequently, NATO should establish credible conventional deterrence to prevent Russia from perceiving any possibilities of quick or inexpensive territorial gains or conflict resolution by force in the Arctic.

Deterrence credibility consists of military capability and political resolve.³⁵ Consequently, NATO should establish sufficient military capability to deny Russia any perceived benefit from the use or threat of force in the Arctic. This can be achieved by forward deployment of combat forces, presence of C4ISR infrastructure and forces for command, control and surveillance, adequate logistics, and adequate force protection in the theatre.³⁶ NATO should emphasize seven elements to provide credible military capability in the Arctic. First, key to NATO forward presence in the Arctic is adequate persistent air and maritime surveillance of the theatre in order to provide strategic warning

³³ Michael S. Gerson, “Conventional Deterrence in the Second Nuclear Age,” *US Army War College Quarterly Parameters* Vol. XXXIX, no. Autumn (2009): 37.

³⁴ Gerson, “Conventional Deterrence in the Second Nuclear Age,” 37.

³⁵ Gerson, “Conventional Deterrence in the Second Nuclear Age,” 42.

³⁶ Gerson, “Conventional Deterrence in the Second Nuclear Age,” 39–40.

of changes in Russian military presence and/or activities, reduce risk of misinterpretation of Russian intentions and capabilities, and to enable operational transition from peace to conflict. Due to the vast size of the area, NATO should establish air and maritime surveillance capability based on a mix of ground-based sensors in combination with airborne platforms and space-based systems. Second, forward deployment of NATO combat forces should focus on air power, which provides the maximum freedom of action and flexibility by reach, height, and speed and will ensure rapid reaction to attempts to use force in the Arctic regardless of ice coverage and terrain. Low-observable multi-role fighters, for example F-35 *Lightning IIs*, deployed to Iceland could be employed immediately for air policing, long-range patrols to demonstrate resolve/presence, and for ISR, and when necessary for air combat and strikes against enemy forces.

Third, NATO should emphasize forward presence of maritime forces in order to control maritime chokepoints as well as ensure force projection into the Arctic. Fourth, NATO should ensure development of an adequate alliance icebreaker capability to enable maritime operations in the Arctic. Fifth, NATO should ensure adequate airlift capability to project forces into theatre rapidly, and adequate sealift capability for heavy lift in support of NATO operations. Sixth, NATO should ensure timely force development of dedicated Arctic combined-joint forces, for example keeping brigades organized, trained, and equipped for operations in the Arctic in a state of high readiness for rapid deployment. Last, NATO should demonstrate military capability by regular large scale exercises utilizing forward deployed combat forces, C4ISR, logistics, and projecting combined-joint forces into the Arctic for scenarios, ranging from peacetime to full scale combat operations.

Nevertheless, credible military capability can only deter if political resolve is credible as well. Because the collective resolve of the NATO alliance is dependent on the individual resolve of the member states,

NATO's political resolve can be optimized by three elements. First, Arctic-littoral NATO-member states should seek to reach resolution of territorial disputes between NATO-members outline in chapter two, in order to increase alliance cohesion in Arctic issues. As presented in chapter two, two major issues persist: the status of the North-West Passage and the delimitation of the Beaufort Sea, both between Canada and the U.S. This is no easy task, as it would involve undesirable compromises; nevertheless, the benefit to the overall security of the alliance should outweigh the cost. In order to solve these, NATO, or more realistically the U.S. as the superpower, could heed the advice from Mancur Olson, the social scientist, in *The Logic of Collective Action*, and provide selective incentives, negative or positive, to Canada to reach resolution of the issues in the overall interest of the NATO alliance.³⁷

Second, NATO-member states should decrease any strategic dependencies on Russia in general, which in crisis and conflict could be utilized by Russia to impede NATO resolve to act. For example, a number of NATO-member states in Eastern Europe are dependent on imports of Russian natural gas; which could be exploited to affect alliance resolve in a crisis.³⁸ Last, NATO should demonstrate resolve and commitment by the establishment of additional trip-wires in the Arctic to ensure the resolve to act in a crisis. According to Schelling: "To incur commitment is to lay a trip-wire, one that is plainly visible, that cannot be stumbled on, and that is manifestly connected up to the machinery of war."³⁹ These could be NATO forces forward deployed to key geographical locations. For example, NATO could deploy a long-range radar facility on Jan Mayen Island or on Bear Island, which, in addition to provide surveillance and communication facilities for NATO

³⁷ Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups*, Revised (New York, NY: Harvard University Press, 1971), 51.

³⁸ Alexander Ghaleb, *Natural Gas as an Instrument of Russian State Power*, Letort Papers (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2011), 14–25.

³⁹ Schelling, *Arms and Influence*, 99.

C4ISR networks, acts a trip-wire in the grand scheme of conventional deterrence.

Establishment of conventional deterrence as argued above has an additional benefit: continued advantage even if deterrence fails. If conventional deterrence fails, the military capability established to provide deterrence credibility will be readily available for employment in combat operations, which has been prepared for conventional conflict both operationally and logistically.⁴⁰ In the Arctic, NATO would consequently be at continued advantage even if conventional deterrence fails. This is because NATO would have thoroughly prepared the theatre for conflict, have combat forces and C4ISR in place, and have readily available forces organized, trained, and equipped all of which sets NATO in a position of advantage in conflict.

In sum, NATO should establish deterrence to prevent any Russian use of force or threat of force in the Arctic. Credible nuclear deterrence should be established by the U.S. and NATO through a broad range of nuclear capabilities and focus on escalation dominance in order to keep escalation below the nuclear threshold. Credible conventional deterrence should be based on the military capability necessary to prevent Russia from being able to achieve objectives by force, and on the political resolve to respond in kind if deterrence fails. Even if deterrence fails, military capability and resolve will ensure continued advantage in any conflict.

Cooperation

While cooperation is “sometimes difficult to achieve and always difficult to sustain”, as deftly articulated by Mearsheimer, NATO should attempt cooperation with Russia in the Arctic.⁴¹ Based on geostrategic control and deterrence, NATO should pursue relations with Russia by a

⁴⁰ Gerson, “Conventional Deterrence in the Second Nuclear Age,” 38.

⁴¹ Mearsheimer, *The Tragedy of Great Power Politics*, 51.

restrained tit-for-tat approach to cooperation for cooperative security and crisis management. Offering opportunities for future cooperation toward reduction of possible points of friction, such as territorial disputes, and efforts to prevent misperceptions between NATO and Russia in an area of common interest would stabilize peaceful relations.

First, by establishment of an Arctic security regime for consultation and cooperation on military security between the Arctic-littoral NATO-member states and the non-NATO Arctic states, primarily Russia, in order to promote regular and durable interaction on military security. Thus NATO promotes practical cooperation by presenting opportunities for future cooperation, in the words of Axelrod: “Enlarge the shadow of the future.”⁴² This furthermore addresses the lack of an Arctic security regime and grave shortcoming of the existing Arctic Council through the formation of a regime to address the issue of primary state interest military security.

Second, NATO should cooperate with Russia on the territorial disputes between NATO member states and Russia in order to reduce friction and improve future cooperation. The four disputes are: extended EEZ over the North Pole, the Svalbard and adjacent territory, Bering Strait/Chukchi Sea, and the Northern Sea Route. While these are sovereign inter-state disputes, their peaceful resolution hinges on NATO’s ability to establish geostrategic control and credible deterrence in the Arctic. Therefore, NATO should utilize the proposed Arctic security regime for peaceful settlement of the territorial disputes between NATO-member states and Russia. Russia is thus presented with an opportunity to address territorial issues by continued cooperation; cooperation is promoted by enlargement of the shadow of the future. Practically, NATO should emphasize settlement by compromises where either party is no better or no worse off than the other, in order to

⁴² Axelrod, *The Evolution of Cooperation*, 126–132.

prolong the viability of bi-lateral agreements. This to keep a stable balance of power by avoiding disproportionate relative gains for one side, especially in issues involving the U.S. and Russia.⁴³

Moreover, by NATO's emphasis on settlement of the disputes through the Arctic security regime, the payoffs for cooperation are altered for Russia, which according to Axelrod should motivate cooperation.⁴⁴

Third, NATO should closely monitor any Russian presence and activities in the Arctic by ISR and strategic intelligence, supplemented with regular consultations with Russia in the Arctic security regime on military activities and forces postures, in order to prevent misperceptions and enable channels for crisis management. NATO's re-militarization of Iceland, forward presence of combat power and C4ISR, activities in the Arctic and preparation of the Arctic for military operations, can be misinterpreted by Russia as a threat to their interests in the Arctic, which in turn could lead to further Russian military build-up, resulting in a security dilemma.⁴⁵ Regular consultation on military activities and force postures in the proposed Arctic security regime could help mitigate a possible security dilemma. Nevertheless, even a security dilemma, or an outright arms race in the Arctic, would still leave the NATO alliance in a position of advantage, as the combined defense spending of NATO dwarfs Russia's defense spending. For example, in 2013 the combined military expenditures of NATO was \$1,023.3 billion, whereas Russia spent \$87.8 billion, less than one tenth of NATO.⁴⁶ NATO can simply

⁴³ For the role of absolute and relative gains and effect on great power cooperation and balance of power, see: Mearsheimer, *The Tragedy of Great Power Politics*, 52–53.

⁴⁴ Axelrod, *The Evolution of Cooperation*, 133–134.

⁴⁵ Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976), 66–67.

⁴⁶ For Russian defense spending, see "SIPRI Military Expenditure Database (1988–2013)," *Stockholm International Peace Research Institute*, accessed March 11, 2015, http://www.sipri.org/research/armaments/milex/milex_database/milexdata1988-2012v2.xls; For defense spending of NATO countries, herein combined spending, see "Financial and Economic Data Relating to NATO Defence - Defence Expenditures of NATO Countries (1990–2013)" (NATO Public Diplomacy Division, February 24, 2014),

better afford an arms-race than Russia, especially when considering the possible need for massive Russian investments in extractive industries and infrastructure in the Arctic as laid out in chapter two.

Consequently, NATO is in a situation of continued advantage even if misperception cannot be mitigated in the Arctic.

In sum, based on a firm foundation of geostrategic control and deterrence, NATO should cooperate with Russia by a restrained tit-for-tat approach. First by the establishment of an Arctic security regime for consultation and cooperation on security matters between the Arctic-Littoral NATO-member states and Russia. Second, NATO should cooperate with Russia on settlement of territorial disputes. Third, NATO should seek to prevent misperceptions and enable channels for crisis management by regular consultations with Russia through the Arctic security regime on military activities and forces postures, verified by ISR and strategic intelligence. While NATO can offer a cooperative Arctic security regime and opportunities, the onus is on Russia to engage constructively in cooperation and seek a peaceful future.

How it All Comes Together, Five Steps of NATO Action.

The strategic approach and the elements of the strategy should be implemented in five steps.

- 1) NATO should staff and promulgate a new strategic concept reflecting a strategic shift toward geostrategic control, deterrence, and cooperation as laid out above. NATO should recognize the Arctic as a region of increasing security interests, and the interdependence between security in Europe/Russia and the Arctic. At the same time territorial disputes between the U.S. and

http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_topics/20140224_140224-PR2014-028-Defence-exp.pdf.

Canada should be settled by select incentives to Canada as laid out above.

- 2) NATO should ensure immediate and permanent deployment of forces to Iceland and for control of the Bering Strait. NATO should, organize, and equip the necessary forces, facilities, and weapons systems for geostrategic control and deterrence in the Arctic. Manning and force development of Arctic capabilities and stand-by forces should primarily be by Canada, Denmark, and Norway, which should fund this by returning their defense spending to meet the 2% NATO goal. Their effort should, where short on capabilities, be supplemented by the U.S. Any additional forces and infrastructure should be funded by the NATO alliance by meeting the 2% goal.
- 3) The new strategic concept should be unveiled no later than the NATO summit in Poland in 2016. At the same summit NATO should recognize Russia as a great power, which has to be approached and treated as such, both in Eastern Europe and the Arctic. NATO must declare a stop to NATO-enlargement and stabilize NATO-Russia relations in Eastern Europe.⁴⁷
- 4) When sufficient forces for geostrategic control and deterrence are in place in the Arctic and Eastern Europe, NATO should establish an Arctic Security regime with the nations from the Arctic Council, and then settle territorial disputes with Russia in the Arctic security regime as laid out above.
- 5) The NATO alliance should continue to adapt established force structures to ensure continued geostrategic control and deterrence, if deterrence fails, to maintain continued advantage in conflict and beyond.

⁴⁷ Mearsheimer, "Why the Ukraine Crisis Is the West's Fault," 86–91.

Summary

As argued above NATO needs an Arctic strategy to manage risks and opportunities in the Arctic. This strategy must address the power structure, increased economic and military significance, national interests, and decline in alliance capability for operations in the Arctic. The strategy should be a plan for continued advantage based on a strategic approach of military containment, combined with a restrained tit-for-tat strategy for cooperation in both the Arctic and Europe. This plan should consist of three elements: geostrategic control, deterrence, and cooperation. Geostrategic control should be established by control of maritime choke-points for sea control of the Arctic Ocean, and adequate military presence in the region, and preparation of the Arctic as a theatre of military operations. Deterrence should be achieved by nuclear and conventional forces: credible nuclear deterrence by a broad range of NATO and U.S. nuclear capabilities, with focus on escalation dominance in order to limit escalation below the nuclear threshold; credible conventional deterrence by denial, based on military capability to prevent Russia from being able to achieve objectives by force, and political resolve to do so if deterrence fails. Cooperation, based on geostrategic control and deterrence, should be a restrained tit-for-tat approach: first, by establishment of an Arctic security regime for consultation and cooperation on security in the Arctic; second, NATO should cooperate with Russia on settlement of the territorial disputes; third, NATO should seek to prevent misperceptions and enable channels for crisis management by regular consultations with Russia in the Arctic security regime on military activities and forces postures, verified by military means. While NATO can offer a cooperative Arctic security regime, the onus is on Russia to engage in cooperation and seek a peaceful future. Even if deterrence fails, geostrategic control, military capability, and alliance resolve will by application of the proposed

strategy ensure continued advantage for NATO even in the event of armed conflict.



Chapter 6

Conclusion

The final outcome of benevolent, informed, and intelligent decisions may turn out to be disastrous. But choices must be made; dies must be cast.

-Herman Kahn, "On Thermonuclear War" 1961

The Arctic is of increased military significance. This is based on the deteriorated relations between NATO-Russia in Europe and security interdependence between Europe and the Arctic. Moreover, the region has increased economic and political significance, due to receding sea ice and technologies enabling increased use of the Arctic. In addition, established maritime and aerospace technologies enable military operations throughout the Arctic. Lastly, increased Russian military presence in the Arctic has also increased its significance.

Consequently, NATO needs to promulgate and implement an alliance strategy for the Arctic. This is due to the international structure of the Arctic region, the increased economic significance, the increased military significance, the geostrategic prospects, the conflict potential, the lack of a NATO strategy for the Arctic, and the decline in NATO capability to operate in the Arctic as an alliance. After answering the research questions, the following briefly summarizes the main findings and principal conclusion and provide a perspective on the implications.

Summary of Findings and Principal Conclusions

The Arctic is changing. Receding sea ice and technology enable increased use of the Arctic. Lucrative non-renewable and renewable natural resources are becoming extractable, especially hydrocarbons, minerals, rare-earth elements, and fisheries. Moreover, trans-Arctic shipping is becoming more and more feasible, which provides new lucrative sea lines-of-communications both for commercial and military purposes.

Both access to natural resources and shipping still have challenges. The Arctic continues to be a technically and physically challenging environment. Development of natural resources and shipping requires vast investments, and profitability depends on the volatile international market. Yet, both are very lucrative under the right set of circumstances. However, utilization of these opportunities depends on territorial rights and status of straits and water passages. Presently five major disputes over territorial delimitation and status of waters exist in the Arctic. Weak inter-governmental organizations and regimes, as well as the regional security interdependence with Europe, shape the region.

The Arctic is a regional security sub-complex in a wider European regional security super-complex. The internal structure of the Arctic is balanced bi-polarity between the U.S. and Russia. Moreover, Russia has major economic and sovereign interests in the region, followed by Norway, Canada, and Denmark, and to a lesser extent the U.S.. Some of these interests are divergent and a challenge in itself. This provides a challenging political and economic context for security in the Arctic, especially in the present geopolitical situation where great power competition over Eastern Europe has returned to the center of the international stage; where an assertive great power, Russia, challenges the U.S. and NATO with continued pro-Russian unrest in eastern Ukraine.

The Arctic is of increased military significance. Due to four primary changes. First, the relationship between NATO and Russia has deteriorated: After many years of relative calm, the annexation of Crimea and continued Russian support to rebels in Eastern Ukraine have resulted in a post-Cold War low in NATO-Russia relations. However, even prior to this Russia demonstrated will and capability in the near abroad: in Georgia in 2008 and Estonia in 2007. NATO enlargement close to Russia's borders has not eased the relationship either and was

probably one of the contextual factors for the 2008 war in Georgia and the conflict in Ukraine. Second, the change in the Arctic context has raised the stakes as argued above. Third, maritime and aerospace technologies which enable access to the Arctic for military operations, has had impact. The primary maritime technologies are icebreaking, nuclear submarines, and maritime nuclear propulsion, all of which open the Arctic as an area of military operations, including utilization of strategic sea lines-of-communications for redeployment of forces from the North Atlantic to the Pacific.

Russia is especially capable in the Arctic due to its vast superiority in icebreakers. However, Russia is also dependent on the Arctic for its second-strike capability, as the Russian bastion concept utilizes ice and the surface fleet to guard the SSBNs. Aerospace technologies, such as the aircraft, missile technologies, and nuclear weapons, open the Arctic as a corridor, resulting in more military operations in the Arctic. Again Russia is especially dependent as the Arctic is the only outlet for long-range aviation to reach the North Atlantic and Western Europe in peacetime, which Russia has increasingly relied on for demonstration of its great power status. Fourth, Russia's increased military presence in the Arctic. The Northern Fleet's recent modernization has increased significance. New Arctic military capabilities are in force development, such as the activation of a Joint Strategic Command, specialized Arctic brigades, opening of airfields, and a drone base.

The analysis indicates three geostrategic projections for the future Arctic: first, Russia as a sea power; second, the Arctic as a Rimland; third, the Arctic as a strategic crossroad in the world. This is based on application of the geostrategic theory of Mahan, MacKinder, Spykman, Douhet, and Seversky to the views of Antrim and Zellen. The main security challenge in the Arctic to NATO is management of risk of conflict with Russia, either as spill-over from conflict in Europe or escalation of intra-theatre conflict over territory or resources. While not the most

likely scenario, due to the stability of balanced bi-polarity, the risk increases as Russia's interests and military presence are increasing. Presently a NATO-Russia conflict in the Baltic countries, due to large Russian minorities and geographical proximity to Russia, could spill-over to the Arctic. Moreover, risk of inter-state conflict in the Arctic over rights to resources or territorial delimitation is plausible due to divergent state interests and weak inter-governmental organizations and regimes. In both scenarios NATO members would most likely invoke collective defense, which would result in a NATO-Russia conflict. The analysis indicates four potential conflict areas: Danish-Russian dispute over the North Pole, Norway-Russia over Svalbard and adjacent waters, U.S.-Russia over status of straits on the Northern Sea Route, and U.S.-Russia over the Bering Strait and Chukchi Sea.

The events in Ukraine and Crimea, as well as a reemphasis on collective defense, should be the beginning of a return to the Arctic for the NATO alliance. Despite efforts in 2009 and continued Norwegian interest, NATO neither acknowledges the security challenge in the Arctic nor has a promulgated strategy. Moreover, NATO's capability to operate in and near the Arctic has declined since the end of the Cold War. While the individual Arctic-littoral NATO states have continued to field and operate capabilities for Arctic operations, NATO has not. De-militarization of Iceland, reduction in headquarters and early warning and surveillance coverage, and general decline in military capability of the Alliance points at this. Yet, the Arctic is still covered by the North Atlantic Charter. This treaty in combination with deteriorating relations with Russia and security interdependence with Europe, and the increased economic and military significance of the region underlines the need for a new alliance strategy for the Arctic.

A NATO strategy to manage risks and opportunities in the Arctic should address: the power structure, increased economic and military significance, geostrategic projections, national interests, and decline in

alliance capability for operations in the Arctic. The strategy should take a very long view and seek continued advantage, rather than a specific end as the future is nebulous and any attempts to predict specific events futile. The strategic approach should be military containment and restrained tit-for-tat cooperation with Russia, in order to achieve continued advantage in NATO's essential core tasks: collective defense, crisis management, and cooperative security. This can be accomplished by emphasis on three elements: geostrategic control, deterrence, and cooperation. Geostrategic control can be achieved by of control maritime chokepoints, adequate military presence in Eastern Europe and the Arctic, and preparation for conducting Arctic operations. Thereby NATO can maintain a position of continued advantage in face of possible Arctic three geostrategic projections. NATO should prevent any Russian perceived benefit from the use or threat of force by establishment of credible deterrence. Credible nuclear deterrence should be established by the U.S. and NATO with a broad range of capabilities aimed at escalation dominance to keep conflicts below the nuclear threshold. Credible conventional deterrence can be achieved by denial, utilizing political resolve and military capability to prevent Russia from achieving objectives by force. A further benefit of a deterrence strategy is the position of continued advantage, even if deterrence fails by a forward presence of forces, an environment prepared for operations, and forces organized, trained, and equipped for employment in war. Cooperation should be pursued by offering Russia opportunities for future cooperation and reduction of points of friction, especially territorial disputes. NATO should pursue this by establishment of an Arctic security regime for consultation and cooperation on military security issues. The territorial disputes should be resolved by compromises wherein no party is better or worse off than the other, in order to maintain a stable balance-of-power in the Arctic. Moreover, the risk of misperceptions and a security dilemma between NATO and Russia

should be mitigated by regular consultations on military activities and force postures in the Arctic security regime, verified by ISR and strategic intelligence. NATO should offer a cooperative Arctic security regime and opportunities for cooperation, but the burden is on Russia to engage in cooperation and seek a peaceful future.

Implications of the Study – Force, Geopolitics, and Geostrategy.

As argued above, a strategic shift is needed in NATO, a reorientation to containment and restrained tit-for-tat cooperation with Russia in order to ensure continued advantage for the alliance both in Europe and in the Arctic. The strategy including five specific NATO actions, argued in chapter five, is the recommended strategy. While the issue has been ignored since 2009, choices have to be made now in order to ensure a NATO return to the Arctic. The outlined strategic approach and elements of geostrategic control, deterrence, and cooperation, cannot guarantee a specific outcome, but provide a position of strength, based on force and geostrategic advantage, from which the difficult path of cooperation can be followed. Lack of a decision by NATO to return to the Arctic is a decision to accept disadvantage; consequently, risk alliance cohesion in the face of a resurgent and presently belligerent Russia in an area of increased importance.

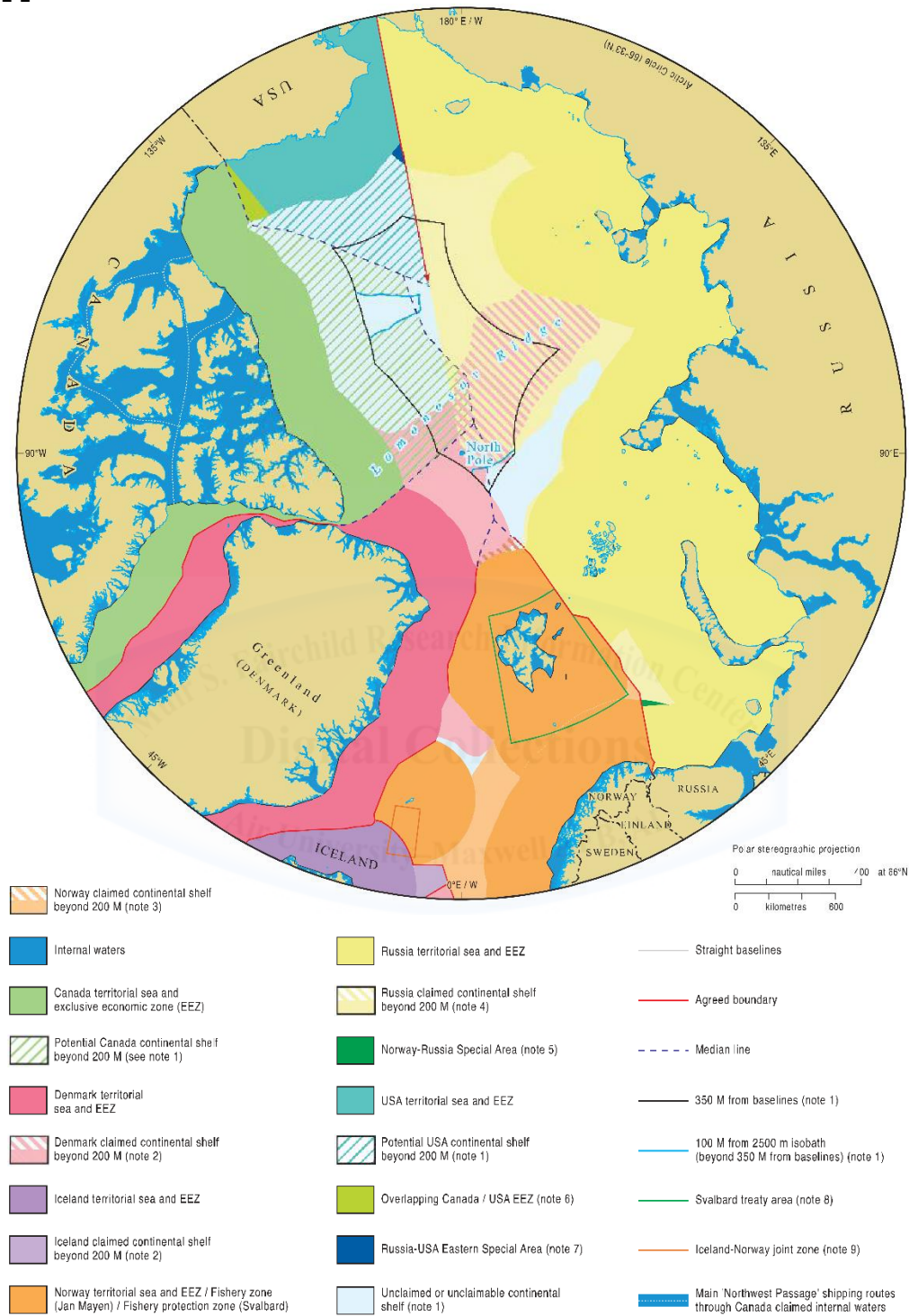
Naïve hopes, policies, and strategies based on optimistic expectations for the longevity of cooperation in the post-Cold War era have failed to ensure stability in Eastern Europe. The primacy of force and dominant role of geography in international relations in Europe and the Arctic have been largely ignored for almost two decades. Ignoring the primacy of force, geopolitics, and geostrategy is perilous, as demonstrated in Ukraine, Crimea, and Georgia. Now is the time to prevent the same blunder in the Arctic and ensure NATO's stable relationship with Russia from a position of strength.

To the strategist the enduring relevancy of force as the first and constant factor, as articulated by Waltz, is a reminder of the continuity in international relations.¹ While peace is a noble and admirable goal, it does not perpetuate itself. Rather, it is unfortunately often an unintended consequence of the distribution of power, as deftly articulated by Mearsheimer.² Equally important is the influence of geography, both on the study and practice of international relations and strategy. Geopolitics, while shunned by some, is here to stay, as the situation in Eastern Europe demonstrates. Consequently, the strategist should seek advantage when able, and be cognizant of the role of technology in changing geopolitics as seen in the Arctic. Force, geopolitics, and geostrategy should therefore be the first and foremost considerations of the strategist, but not the only considerations, as the strategist's aperture must be open to specific contextual factors in his analysis and recommendations. Only then can we hope to improve our odds in the ancient game of national survival and control the outcome of the Arctic thaw.

¹ Waltz, *Theory of International Politics*, 113.

² Mearsheimer, *The Tragedy of Great Power Politics*, 49.

Appendix Maritime Jurisdiction and Boundaries in the Arctic Region



Source: ©IBRU, Durham University, UK, (<http://www.durham.ac.uk/ibru/resources/arctic>) used with permission and adapted from. For details and notes to legend, see International Boundary Research Unit, "Maritime Jurisdiction and Boundaries in the Arctic Region".

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