

THE DAWN OF A NEW ARCTIC CHESSBOARD

Master of Arts in Law and Diplomacy Thesis

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For she who has not yet arrived.

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Abstract

The Arctic region is constantly changing and over the past decade has been re-launched to the forefront of modern geopolitics as climate change has increased the potential availability of natural resources and new shipping lanes. This has sparked the interest not only of the five polar coastal states (U.S., Russia, Canada, Norway and Denmark (Greenland)) and the Arctic Council; but also of other countries and non-state actors who wish to exert their influence on the region. Elevated interest in the area and the desire of outside actors to become involved, have the potential to completely alter the political dynamics of decision making processes. We demonstrate and quantify, by analysis of geopolitical and international relations theories, motivations of the main actors, and the development of a Chessboard Model based on game theory, that it is imperative for the polar coastal states to resolve their existing disputes and collaborate in the region if they are to discourage the involvement of Arctic “newcomers” and retain control of decision making processes in the Arctic.

Introduction

A unique combination of climate change, natural resources, new shipping lanes, disputed borders, and the presence of military personnel is illuminating the Arctic as one of the most important regions in modern global geopolitics. With many interested actors ranging from global superpowers to multinational security alliances, everybody is waiting for their piece of the Arctic. The present work will identify the main actors, discuss their current positions, and adopt an analysis based on game theory to determine the best outcomes for each actor. For the purpose of this analysis, we build an “Arctic Chessboard” model based on a scenario under which we have two main groups each with their own pieces; the polar coastal states and other non-Arctic states and bodies trying to gain access to the Arctic, which we name “newcomers”. Our hypothesis is that internal collaboration within a coalition of the polar coastal states will strengthen their collective moves while internal disputes will leave their weaknesses exposed to the Arctic “newcomers”. Under this scenario, two main questions arise: Will the coastal states compromise disagreements in a “closed approach” to perpetuate a new “cold” balance of power in the circumpolar region in the years to come? Or will polar coastal states allow “newcomers” to move their pieces on this “New Arctic Chessboard”?

The Arctic is the fastest-warming region on earth and continues to melt at a breathtaking rate, allowing potential access to Arctic sea fauna, mineral and energy resources that may facilitate the acquisition of new raw material reserves for the world’s economy. Of particular interest is the estimation of the U.S. Geological Survey (USGS) that the Arctic holds as much as one-quarter of the world’s remaining undiscovered oil

and gas deposits.¹ The polar meltdown also increases speculation about the future of the Northwest Passage and the Northern Sea Route for the shipment of goods between Europe and Asia.² Additionally, unresolved disputes over sea-bed jurisdictions between the five polar coastal states, namely Russia, Canada, Norway, Denmark (Greenland), and the U.S. display tensions to the outside world, which could lead to an “every man for himself” situation. Despite much alarmism about this scenario, recent developments suggest that there is increased desire for collaboration between the polar coastal states.^{3 4}

The Arctic is also turning into a venue for nations to showcase their military strength; leading to playful rivalries. For example, Russia and Canada have started the construction of new craft capable of operating in Arctic conditions and the U.S. has already announced that similar plans are on the way. Moreover, a growing interest in the region from non-Arctic bodies such as NATO, the EU, and China add pressure to the existing Arctic Council for greater engagement of other major actors interested in R&D, the accessibility of new shipping lanes, fishing rights, and the partitioning of natural resources. Therefore, the polar coastal states must overcome their differences in order to achieve the common goal of limiting the “newcomers” access to the Arctic and its resources.

¹ “Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle,” USGS Fact Sheet 2008-3049, U.S. Geological Survey, Denver, Colo., 2008, (Accessed May 1, 2010), Available from: <http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf>.

² The U.S. National Snow and Ice Data Center is expecting the summer months of 2060 to be completely ice-free, and perhaps even sooner as some scientists have suggested ice-free summers in 2015.

³ Michael Byers, *Solution in sight for Beaufort Sea spat*, (Accessed May 3, 2010), Available from: <http://byers.typepad.com/arctic/2010/03/solution-in-sight-for-beaufort-sea-spat.html>

⁴ *Russia and Norway strike Arctic Sea border deal*, (Accessed May 2, 2010), Available from: <http://www.reuters.com/article/idUSLDE63Q14D20100427?type=marketsNews>

Part I of this paper discusses geopolitics and international relations in the Arctic region through a combination of a balance of power and a “*Realpolitik*” analysis, linking geophysical aspects of the High North to geo-strategic dynamics with potential consequences for international and regional stability. In Part II we strive for a complete understanding of the geopolitical consequences arising from the military presence and activities in the region, and take a closer look at the current *savoir faire* strategies and tactics of the polar coastal states, as well as other non-Arctic States and international organizations, whose interests in the region are reshaping the High North. Part III adopts a cooperative approach using game-theory to assess the possibility of the polar coastal states acting cooperatively to perpetuate a new “cold” balance of power in the circumpolar region by acting as unified block that will resist the participation of “newcomers”. The latter group believes that the High North and the Arctic Council in particular cannot remain impermeable to the outside world and a growing number of actors are adding pressure for a change in the organizations roles. As such, they agitate for an international “New Arctic Chessboard” where non-Arctic states and other international bodies have increased power and influence in a more globalized world. Finally, Part IV brings together the main conclusions from this work.

I - Geopolitics and International Relations in the Arctic

A New Mediterranean?

The Mediterranean and the Arctic seas present some historical geophysical similarities. “Both are relatively shallow, with narrow and defensible choke points, both are or have been, tactically and strategically important for the projection of naval, air, and land-based military power from one continent to another.”⁵ Moreover, the opening of new shipping lanes and the potential trade benefits for the international community means that the Arctic could evolve into a true Mediterranean style region; but until environmental changes have fully transformed the geophysical environment of the Arctic, this metamorphosis is on hold.

A Geopolitical Approach

Geopolitics is defined as the analysis of the interaction between geographical features and perspectives, and political processes that influence international behavior.⁶ Geopolitics is a dynamic process that adapts to the geographical changes that take place due to alterations made by nature or nation states defining the strategic importance of various regions in the world stage. Through the lens of geopolitics, the Arctic was and is still considered to be on the periphery of world affairs and not the center of attention as was the Mediterranean in classical times.⁷ A prominent geopolitical theorist, Halford

⁵ Barry Scott Zellen, *Arctic Doom, Arctic Boom: The geopolitics of climate change in the Arctic*, (Praeger; 1st Ed. 2009) p. 8.

⁶ Saul Bernard Cohen, *Geopolitics: The Geography of International Relations*, (Maryland, Rowman and Littlefield Publishers Inc. 2009) p. 12.

⁷ *Ibid.*, p. 16.

Mackinder, in 1904 theorized that the area with the most geo-strategic importance in the Eurasian landmass was the “Pivot Area”, which comprises the vast territory of the post-Soviet era and its abundance of resources. In Mackinder’s paper “Democratic Ideals and Realities” of 1919, he depicted a struggle between the land and sea powers. He modified his view in 1943⁸ to include the significance of aerial power to draw the boundaries of the Heartland, a terminology introduced by James Fairgrieve⁹ and later adopted by Mackinder. Similarly, in the 1930s, Nicholas Spykman shared the kernel of Mackinder’s view, but placed more importance on the Eurasian coastal lines referred to as the Rimlands. For him, control of the Rimlands meant control of the entire world through access to the Heartland. Both geographers missed the importance of the “Arctic Wastes” whereas, George Renner, in 1940, outlined the importance of the air lanes which linked the Heartland with a second Anglo-American region across the Arctic to form a new expanded Heartland within the northern hemisphere.¹⁰ Joseph S. Roucek also sees the Arctic Ocean as the “central connecting area between the North American and the Eurasian continent”¹¹. For Renner, the Arctic became the epicenter of the new expanded Heartland as it also possessed the advantages of interior air, sea, and land routes across the polar world. Thus, the Arctic, as the pivotal world arena of movement, was the key to

⁸ Halford J. MacKinder, *The Round World and the Winning of the Peace*. *Foreign Affairs*, 21, No. 4, (1943) p.595.

⁹ James Fairgrieve, *Geography and World Power*, (Harvard University, E.P. Dutton & Company, 1917) p.329.

¹⁰ Saul Bernard Cohen, *Geopolitics: The Geography of International Relations*, (Maryland, Rowman and Littlefield Publishers Inc. 2009) p. 24-25.

¹¹ Joseph S. Roucek, *The Geopolitics of the Arctic*, *American Journal of Economics and Sociology*, 42, No. 4, October 1983, p. 464.

Heartland and therefore, to world control.¹² In agreement with this conjecture, De Seversky's map of 1950¹³ placed the North Pole at the center of the "Area of Decision" the region where North America and former Soviet territory overlapped and now polar coastal states are beginning to roll up their sleeves to approach the North Pole.

From the Cold War to the Hot Arctic

The Cold War emphasized the Arctic as a strategic location, as the shortest route between the U.S. and the former Soviet Union was over the North Pole. During the Cold War, the Arctic Ocean remained a key strategic transit point for Soviet and American nuclear powered submarines, and an important region for intelligence collection and early warning.¹⁴ Advancing submarine capabilities enabled modern sea power to turn the Arctic basin into a theater of increasingly important undersea military activity. "The Arctic basin thus became a route of indirect strategic attack and an important pillar of deterrence".¹⁵ Under these conditions, international relations between the circumpolar states were literally frozen - the only signs of collaboration were between the NATO allies; Canada, the U.S., Iceland, Norway, and Denmark. Sweden and Finland remained neutral, but the Finnish government was closely connected with the Soviet Union.¹⁶ Despite some remarkable moments such as the fall of a Soviet nuclear powered satellite, Cosmos 954, in the Canadian Arctic during the Cold War, possible confrontations

¹² Saul Bernard Cohen, *Geopolitics: The Geography of International Relations*, (Maryland, Rowman and Littlefield Publishers Inc. 2009) p. 23.

¹³ Ibid., p.24.

¹⁴ *Security prospects in the High North: geo-strategic thaw or freeze*, p. 11 (Accessed May 2, 2010), Available from: http://www.ndc.nato.int/download/publications/fp_07.pdf

¹⁵ Barry Scott Zellen, *Arctic Doom, Arctic Boom: the geopolitics of climate change in the Arctic*, (Santa Barbara, ABC-CLIO, LLC, 2009) p.4.

¹⁶ Robert Huebert, *Canada and the changing international arctic: At the crossroads of cooperation and conflict*. (Accessed May 1, 2010), Available from: <http://www.irpp.org/books/archive/AOTS4/huebert.pdf>

between the two super powers were avoided due to the fact that none of them possessed the military equipment or the technology necessary to fight in such severe climates. Although, the Arctic was considered a strategic location, it was not perceived as crucial to the predominance of one of the two super powers and so the northern frontier remained peaceful because it was peripheral to their competition. Once the days of the bipolar world order were gone, the diplomatic talks in the High North resumed. At the end of the 1980s, the Finns decided to launch the “Finnish initiative” as new studies highlighted environmental degradation in the Arctic. In 1991, this initiative led to the creation of the Arctic Environmental Protection Strategy (AEPS). The remit of the strategy in which the eight Arctic nations — Canada, Russia, the U.S., Denmark, Sweden, Norway, Iceland, and Finland – took part was to conduct further research in the circumpolar region in order to define environmental problems and respond with suitable solutions to any potential threats.¹⁷ In 1996, these countries decided to convene and redefine the objectives, the structure, the financial organization, and the legal status of an ongoing initiative called the Arctic Council.¹⁸ This new forum allows member states to address their concerns about the Arctic and foster greater circumpolar collaboration. The Council includes six indigenous peoples organizations and accommodates official observers from non-polar countries, non-governmental organizations, scientific organizations, and other international bodies.

Balance of Power and a “Realpolitik” Approach

¹⁷ Ibid., p. 10

¹⁸ Declaration on the Establishment of the Arctic Council, Ottawa, September 19, 1996.

If we take a closer look at some theories of International Relations, we can gain a general overview of earlier studies in order to understand why polar coastal states are seeking territorial aggrandizement, greater influence and presence, the possibility to exercise their power, and preserve an “impermissible” Arctic region, thus seeking a “cold” balance of power between themselves. To this end, we analyze the notion of power and the theory of balance of power. In particular, we focus on two great advocates of the “*Realpolitik*” school of international relations, Hans Morgenthau and Henry Kissinger.

Hans Morgenthau explained in his classic text “*Politics Among Nations: The Struggle for Power and Peace*”¹⁹ that power is a psychological relationship between “the actor or actors who exercise it and those over whom it is exercised”.²⁰ He associated power to national interests since “any action or policy that maximized a nation’s power was in the national interest, and action and policies that did not maximize power were not in the national interest”.²¹ Among other important factors Morgenthau discussed on the role of power in international affairs, he made clear distinctions between power and influence; as the former refers to the ability to determine outcomes whereas the latter to the ability to affect the decisions that in the end will be taken by those who determine outcomes. More importantly, he mentioned that states with power would undertake coercive actions to achieve their goals. However, some critics of this point believe that

¹⁹ Hans J. Morgenthau, *Politics Among Nations: The Struggle for Power and Peace*, (New York: Alfred A Knopf, Inc. 1973).

²⁰ Daniel S. Papp, *Contemporary International Relations – Frameworks for Understanding*, (New York: Macmillan Publishing Company: 2nd edition, 1988) p. 350

²¹ *Ibid.*, p.350

power embraces aspects other than simple coercion. There may be attractive components between players which enhance loyalty from lesser actors.²²

As every state is supposed to seek power, Morgenthau proposes a system of “balance of power” in which states would have a check and balance approach with each other to maintain the desired stability.²³ The balance of power theory is linked to Realism as this traditional school of thought sees nation-states as the principle actors of an anarchical international system, which encourage a balance of power system, so that in absolute terms “their security, stability, power and influence can be more readily enhanced”.²⁴ Classical realists such as Morgenthau and philosopher Thomas Hobbes²⁵ argued that hostility between states is an inevitable condition in international relations and therefore, the emergence of a balance of power system is essential for their survival.²⁶ This system however, may be usurped by military power and used as a “last resort” to achieve superiority if the purely diplomatic balance of power destabilizes. States are conscious that a balance of power is preferable to hegemony as the “international society is composed of cooperative as well as conflictual elements and, at a minimum, must provide the ‘rules of the game’ within which competition takes place”.²⁷ It is worth noting that the balance of power we are advocating is the balance of power in a system by which “a collection of states, autonomous units of power and policy, are

²² Ibid., p. 350.

²³ Steven Chan, *International Relations Perspective: The Pursuit of Security, Welfare, and Justice*, (New York and London: Macmillan Publishing Company, 1984) p.119.

²⁴ Michael Sheed, *Balance of Power: History and Theory*, (London & New York: Routledge, 1996) p. 8.

²⁵ Thomas Hobbes, *Leviathan, or The Matter, Forme, & Power of a Common-Wealth Ecclesiastical and Civil*, Printed for Andrew Crooke, at the Green Dragon in St. Paul’s Churchyard, 1651.

²⁶ Ibid., p.13.

²⁷ Ibid., p.15.

involved in such intimacy of interrelationship as to make reciprocal impact feasible”.²⁸

The best way to make this system work is through changeable coalitions (based on a single common interest, but one of sufficient importance to override their differences on other issues) as it provides to states, the possibility of acting together in response to threats and challenges in a rapid, energetic, and collective manner.

If we apply these classical views to the Arctic dynamics, we can state that power, reputation, and influence are at stake in the interaction between the polar coastal states. Moreover, we can refer to power as the tool that most powerful countries in the circumpolar region want to use as a means and ends to achieve a desired outcome. This does not necessarily mean the use of force, from the current perspective, as it is unlikely this could be a possible scenario in the Arctic. Instead, they could pursue collaboration through either coercive means or attractive components that may form a unified bloc, where no “newcomers”, such as the EU, NATO, China, Japan or other actors may have a say, thus achieving an impermeable Arctic in which the partition of the resources, the administration of the region, and the decision making process will be entirely in the hands of the polar coastal states, thereby forming a “cold” balance of power. Under this scenario, governments will accept boundaries, territorial waters, relative influence and acknowledge reputation despite the desire to maximize their own interests as they might realize that accepting each other’s presence and addressing their concerns is the best outcome for their expectations and desire to fully control the region. On the other hand, “newcomers” may not look at power as a useful tool but instead turn to influence, through which, they might be able to affect the decisions that in the end will be taken by

²⁸ Ibid., p.53.

polar coastal states and, to some extent, gain some access and a voice in the Arctic Council. This scenario would reflect a game of strategies by two fronts whose interest of power, influence, and reputation are at stake.

Another advocate of “*Realpolitik*” is Henry Kissinger. The conceptual understanding of geopolitics reflects the vision of how to play the game under the Henry Kissinger’s *savoir faire* strategies and tactics in foreign affairs. Under this scenario, the principles of geopolitics consist of the balanced, realistic, rational, transcendental and permanent power politics. Two main concepts can be determined: First, the “*raison d'état*” is the notion that the interests of the state justify whatever means are necessary to pursue those interests. The second key concept is “the balance of power” in which each nation maintains its independence by aligning itself to, or opposing, other nations according to its calculation of the imperatives of power, giving rise to a system where no nation totally dominates. For Kissinger, it is within a functioning equilibrium that diplomacy operates best – where big powers “compromise in order to perpetuate the international system”.²⁹

If we look at how polar coastal states interpret the “*raison d'état*” in the Arctic region, it can be said that the main players in this game want to maximize their gains and pursue their interests pertaining to territorial aggrandizement, greater military presence, sovereignty issues, and ownership of lucrative natural resources at any cost. However, all the polar coastal states are rather skeptical in pursuing policies that may irritate neighboring countries, especially when it comes to adopting a more open approach in which, not only the main players in the High North will have a say, but also the

²⁹ Henry Kissinger, *Diplomacy*, (New York: Simon & Schuster, 1994) p.17-28.

“newcomers” will be allowed to move their pieces in this “New Arctic Chessboard”. The second concept: “the balance of power” can be interpreted as follows: The current situation is moving towards a “cold” balance of power in which each polar coastal state will maintain its sovereignty and rights by pursuing an agreement where its interests and calculations can be met. As a matter of fact, while Canada and the U.S. are finally trying to arrive at an agreement on the Beaufort Sea, in which both countries ultimately benefit³⁰; on the other side of the Arctic Ocean, Norwegian Foreign Minister Jonas Gahr Store has recently signed a treaty with Russia that settles the Arctic’s most significant boundary dispute – 176,000 square kilometers of the Barents Sea, a shallow portion with rich fisheries and extensive oil and gas fields.³¹ Further collaboration in conducting geological research has taken place among the main actors. They have realized that in order to meet all the criteria the Commission on the Limits of the Continental Shelf (CLCS)³² is asking them to submit as proof of their sovereignty rights in territorial waters that go beyond the 200 nautical miles, depending on the shape and sediments of the seabed, they have no choice but to share their technology and knowledge in the field. Also, submitting a collective claim has been discussed in recent talks among the interested parties. U.S. Secretary of State Hillary Clinton recently stated of the need for Arctic countries to work together. “We need all hands on deck because there is a huge

³⁰ John Thompson, *Solution in sight for Beaufort Sea spat*, (Accessed May 2, 2010) Available from: <http://byers.typepad.com/arctic/2010/03/solution-in-sight-for-beaufort-sea-spat.html>

³¹ Michael Byers, *It's time to resolve our Arctic differences*, (Accessed May 4, 2010), Available from: <http://byers.typepad.com/arctic/2010/04/its-time-to-resolve-our-arctic-differences.html>

³² The UN Commission on the Limits of the Continental Shelf was created to aid the implementation of UNCLOS Article 76, which determines that coastal states may claim control of the seabed extending beyond the traditional 200-mile limit if enough evidence is given to prove that the ocean floor is connected to their continental shelf. For more information please visit: Commission on the Limits of the Continental Shelf (CLCS) available at http://www.un.org/Depts/los/clcs_new/clcs_home.htm

amount to do, and not much time to do it”.³³ Since, for Kissinger, it is within a functioning equilibrium that diplomacy operates best, in the case of the Arctic, we have the “big polar powers” endeavoring to find new ways of collaboration and compromise in order to perpetuate a “cold balance of power” in the High North.

³³ Michael Byers, *It's time to resolve our Arctic differences*, (Accessed May 4, 2010), Available from: <http://byers.typepad.com/arctic/2010/04/its-time-to-resolve-our-arctic-differences.html#more>

II - Strategies of the Polar Coastal States

The new geopolitical scenario has brought to the forefront security and economic interests of the polar coastal and other interested states; as well as the concerns of international organizations, which have openly declared postures on the protection of their interests in the Arctic region. It is imperative to analyze the strategies and policies adopted by the most important players in the circumpolar world as it will provide the foundation for a more sophisticated approach in dealing with all the parties in the section IV.

The Russian Polar Etiquette

If a geopolitical race is taking place in the Arctic then Russia is certainly in pole position. The “Russian Polar etiquette” translates as, “You take what you can get, just to be on the safe side”. In August 2007, a nuclear-powered Russian ice-breaker lowered two miniature submarines, Mir 1 and Mir 2 whose tasks were to descend to the ocean floor, collect geological samples, and plant a Russian flag on the seabed of the Arctic Ocean. One of the explorers, Artur Chilingarov, declared: “the Arctic is ours and we should manifest our presence”.³⁴ With this heroic task, Russia, a UNCLOS signatory country, expects to provide convincing evidence that the outer continental shelf (OCS) and the Lomonosov Ridge belong to them. Russia has submitted claims to the CLCS, which will decide if Russia can expand its territorial rights beyond the Exclusive Economic Zone (EEZ) in the Arctic Ocean. A request from the Russians was already denied once, but this

³⁴ Roger Howard, *The Arctic gold rush: The new race for tomorrow's natural resources*, (London and New York: Continuum Publishing Corp. 2009) p. 2.

time they come better prepared and threaten to leave the UN Convention on the Law of the Sea (UNCLOS) if their rights are not recognized.

The Russians are certainly not prepared to give its Arctic territory away to anyone. Expansion of Russia's northern border would yield immense natural resource earnings. Geologists are conducting studies in the Barents and Kara Seas as predictions estimate at least four large oil or gas fields beneath the ocean floor containing circa 3.3 billion tons of oil and up to 5 billion cubic meters of gas.³⁵ If the Shtokman field in the Barents Sea is successfully implemented, then the first gas from the Arctic could be expected by 2016 as the initial date has been delayed. Increased hydrocarbon production would make the Northern Sea Route a vital transport route for oil and gas. This summer, the Russian state's shipping company, Sovcomflot, aim to sail an oil tanker from Vitino to Japan, escorted by two nuclear-powered ice breakers. This endeavor, if successful, will mark the beginning of a change in Russian oil and gas exports away from Europe towards Eastern markets.³⁶

An Arctic policy document endorsed by the Russian government in 2001 stated that all types of activities in the region are directly linked to Russia's security and defense interests. However, Russia's main circumpolar strategies are based on the new National Security Strategy of the Russian Federation until 2020.³⁷ In its draft, the government declared that "the struggle for hydrocarbon resources can be developed to the [extent of]

³⁵ *Russia unveils aggressive arctic plans*. (Accessed April 30, 2010), Available from: <http://www.spiegel.de/international/world/0,1518,604338,00.html>

³⁶ *China looks to Arctic shipping route*, (Accessed April 30, 2010), Available from: <http://www.ft.com/cms/s/0/8360ad4c-2553-11df-9cdb-00144feab49a.html>

³⁷ Security Council of the Russian Federation, National Security Strategy of the Russian Federation up to 2020, signed on May 12, 2009, (Accessed May 4, 2010), Available from: <http://www.scrf.gov.ru/documents/99.html>

military confrontation . . . , which can result [in the] violation of balance on Russia's borders".³⁸ As a matter of fact, the document specifically indicates the Arctic as a possible theater for geopolitical competition. As such, Russia continues to prepare and properly equip for the "Age of the Arctic". As previously stated Russia has at its command two Mir submersibles, but in addition to this, in 2008 it reinforced its Northern Fleet, it possesses a fleet of a half-dozen massive icebreakers and is planning to build a new fleet of nuclear-powered icebreakers in the coming years.³⁹ Since 2008, Russia has resumed patrols of Arctic waters and carried out strategic bomber missions along the Norwegian coastline.⁴⁰ It plans to invest more than a billion dollars in the northern port of Murmansk, doubling the port's capacity by 2015. Moscow has also completed a reactor vessel for the first floating nuclear power plant in October 2008. Needless to say, and as the Russian doctrine dictates, "The army is supposed to advance the state's goals in the surrounding region."⁴¹

The Canadian "grand rhetoric"

The Canadian attitude of the 1990s, where Canada passed up the possibility of buying underwater listening devices that would have provided complete coverage of the

³⁸ Ibid.

³⁹ Roger Howard, *The Arctic Gold Rush: The new race for tomorrow's natural resources*, (New York and London: Continuum Publishing Corp. 2009), Chapter 1.

⁴⁰ Heather Conley and Jamie Kraut, U.S. *Strategic Interests in the Arctic: An Assessment of Current Challenges and New Opportunities for Cooperation*, A Report of the CSIS Europe Program, April, 2010, p.24-45.

⁴¹ *Russia unveils aggressive Arctic plans*, (Accessed April 30, 2010), Available from: <http://www.spiegel.de/international/world/0,1518,604338,00.html>

choke points in the Canadian High North, has gone.⁴² In recent years, Canada has realized that the Arctic is no longer a worthless back door and has understood that “if you do not use it, you lose it”.⁴³ But is this a periodic obsession or has the Canadian Grand Rhetoric come to an end? Are Canadian policymakers realizing the importance of preparedness for the Canadian Navy and Coast Guard to exercise its sovereignty and security policies in the Arctic? The navy’s last northern operations before the current resumption of activity occurred in 1989.⁴⁴ It was not until 2002 that all three branches of the Canadian Forces, took part in a joint exercise called *Operation Narwhal* aimed to “conduct a joint/combined SOVOP [sovereignty operation] to visibly project Canadian sovereignty in a rarely patrolled location of the High North”.⁴⁵ In 2004, there was a new *Operation Narwhal* followed in 2005 by a three maritime operations⁴⁶ all conducted during the best weather and ice conditions and yet, a series of shortfalls and communication problems were found. In 2006, the Harper Government announced the possibility of acquiring three new icebreakers. In lieu of such acquisition, in 2007, it was announced that six ice-strengthened corvette-type Arctic patrol vessels would be purchased.

Canada is involved in several international disputes in the Arctic region. The U.S., the European Union, and others insist the sea route in the Canadian third sea is an

⁴² Robert Huebert, *Renaissance in Canadian Arctic Security*, Canadian Military Journal 6, no. 4 (Winter 2005-2006) p. 21.

⁴³ Harper on Arctic: ‘Use it or Lose It’, Canada.com, (Accessed May 4, 2010), <http://www.canada.com/topics/news/story.html?id=7ca93d97-3b26-4dd1-8d92-8568f9b7cc2a>.

⁴⁴ *Canadian Arctic maritime security: The return to Canada's third ocean*, (Accessed May 1, 2010), Available from: <http://www.journal.forces.gc.ca/vo8/no2/huebert-eng.asp>

⁴⁵ Department of National Defense, Canadian Forces Northern Area (CFNA), *Initial Concept and Tasks SOVOP NARWHAL*, (2002) p. 2.

⁴⁶ *Ibid.* p.2.

“international strait” beyond Canada’s exclusive jurisdiction. Canada claims the Lomonosov Ridge is an extension of the North American land mass and is planning a series of missions to Ellesmere Islands to gather geological evidence. Other disputes include the ownership of Hans Island with Denmark and the dispute over the seaward border of Ellesmere Island and Greenland. Canada has adopted a \$109 million budget, to be spent before 2014, into research and Arctic science to substantiate these claims.⁴⁷ Finally, the boundary delimitation of the Beaufort Sea totalling 6,250 square nautical miles, a region that may contain tremendous potential for oil and natural gas, involves a challenge from the United States.⁴⁸

Ottawa has realized that the Arctic represents a combination of sovereignty and security issues important for its Defense Strategy and the Canadian Northern Strategy. Sovereignty, because it is a matter of being able to control their territorial waters, which links directly with security as they must provide appropriate security for its sovereign territory.⁴⁹ In order to support these policies, in December 2009, Canada’s House of Commons unanimously passed a bill to rename the Northwest Passage the “Canadian Northwest Passage”.⁵⁰ Furthermore, during the same month, the Senate fisheries committee suggested new rules requiring all foreign vessels to formally register their

⁴⁷ Fisheries and Oceans Canada, *Canada’s Submission to the Commission on the Limits of the Continental Shelf Under the United Nations Convention on the Law of the Sea*, (Accessed May 3rd, 2010) Available from: <http://www.dfo-mpo.gc.ca/ae-ve/evaluations/08-09/6b060-eng.htm#ch3.1>.

⁴⁸ *Canada's Arctic maritime security: The return to Canada's third ocean*, (Accessed April 30, 2010), Available from: <http://www.journal.forces.gc.ca/vo8/no2/huebert-eng.asp>

⁴⁹ Robert Huebert, *Canadian Arctic security: Understanding and responding to the coming storm*, (Access April 29, 2010), Available from: http://www.canadianinternationalcouncil.org/resourcece/archives/foreignpol/cic_hueber

⁵⁰ Heather Conley and Jamie Kraut, U.S. *Strategic Interests in the Arctic: An Assessment of Current Challenges and New Opportunities for Cooperation*, A Report of the CSIS Europe Program, April, 2010, p.16.

presence in the Canadian Archipelago in an attempt to strengthen the often voluntary, Arctic Canada Traffic System, NORDREG. Canadian MPs support stronger measures to avoid awkward situations such as the flight of Russian bombers close to Canadian airspace during the visit of U.S. President Barak Obama to Ottawa in February 2009.⁵¹

The Canadian Defense Department has budgeted \$61 million for a new training site in Resolute Bay, Nunavut, but it could take a cheaper route and enter into a long-term arrangement to use an existing federal science research building already at that location. Mr. Harper also stated that the Canadian Rangers would be expanded and re-equipped, and a deepwater Arctic docking and refueling facility would be established at Nanisivik on Baffin Island – \$100 million worth.⁵² Canada is also planning to add 1,000 additional soldiers to its Arctic Ranger troops, and invest more \$3.1 billion in new Arctic patrol ships.⁵³

The Norwegian “cooler head” strategy

Norway places the Arctic at the top of its domestic and foreign policy agenda. It is a great advocate of improved circumpolar relations among coastal states. As a clear proof, in 2008, the Stoltenberg Report⁵⁴ was sponsored by the foreign minister of Norway, Thorvald Stoltenberg, for fostering foreign and security cooperation among polar nations. Norway considers developing its relationship with Russia to be the

⁵¹ Micheal Byers, *Who owns the Arctic? Understanding Sovereignty Disputes in the North*, (Vancouver: Douglas & McIntyre, 2010) p. 2.

⁵² Alec Crawford et al. *Arctic Sovereignty and Security in a Climate Changing World*, (Accessed May 3, 2010), Available from: http://www.iisd.org/pdf/2008/arctic_sovereignty.pdf

⁵³ Harper on Arctic: ‘*Use it or Lose It*’, Canada.com, (Accessed May 4, 2010), <http://www.canada.com/topics/news/story.html?id=7ca93d97-3b26-4dd1-8d92-8568f9b7cc2a>.

⁵⁴ Thorvald Stoltenberg, Proposals presented to the extraordinary meeting of Nordic foreign ministers in Oslo on 9 February 2009, Nordic Cooperation on Foreign and Security Policy.

necessary precondition for successful implementation of its national strategy in the High North. The Norwegian government proposed the establishment of a Russian-Norwegian economic "Pomor Zone Kirkenes-Pechenga",⁵⁵ which was supported by the Russian government. Other collaborations are taking place in the energy sector, for example, Gazprom in 2008, invited Norwegian company "StatoilHydro" to participate in the development of the Shtokman field together with the French company "Total". Unfortunately this cooperation has been put on hold as the Stockman project has been delayed for at least three years due to major changes in the global gas markets. Despite this, Norway continues to flex its muscles, becoming more active in the region and investing more than \$10 billion to reinforce the High North defense. Also, they have moved their operational headquarters above the Arctic Circle.⁵⁶ In November 2006, Norway submitted its claims to prove their ownership of specific areas of the Norwegian Sea, the Barents Sea, and the Arctic Ocean. According to the documentation presented, Norway's continental shelf does not extend to the North Pole, but to approximately 84 degrees 41 minutes north.⁵⁷ In 2009, Norway accepted the adjustments made by the UN Commission's experts as Norwegian Foreign Minister, Jonas Gahr Stoere, stated: "In the

⁵⁵ The Norwegian Barent Secretariat, *Pomor Zone: New phase of Barents Cooperation*, (Accessed April 30, 2010), Available from: <http://www.barents.no/pomor-zone-new-phase-of-barents-cooperation.380638-43295.html>

⁵⁶ Conley, Heather and Kraut, Jamie. U.S. Strategic Interests in the Arctic: An Assessment of Current Challenges and New Opportunities for Cooperation, A Report of the CSIS Europe Program, April, 2010. p.23.

⁵⁷ Secretary State, Elisabeth Walaas. *Norway's policy in the High North: The Northern Dimension*, (Accessed May 3, 2010), Available from: <http://www.regjeringen.no/en/dep/ud/Whats-new/Speeches-and-articles/Speeches-and-articles-by-political-staff/statssekretar-walaas/2008/Norways-Policy-in-the-High-North--the-Ar.html?id=497558>

discussion about who owns the North Pole – it’s definitely not us”.⁵⁸ Given the Norwegian-Russian maritime border issue and the military sensitivity of the Barents Sea area for Russia, security has traditionally been a key High North concern for Norway. Until few years ago, however, security concerns were mostly sidelined as euphoric enthusiasm for an Arctic bonanza intensified. The balancing of the interests of the petroleum industry, which generated 22% of GDP in 2009, with environmental and fishery concerns has proved one of the most difficult acts within Norwegian High North politics.⁵⁹ However, Norwegians have understood that having Russia as their direct neighbor not only implicates greater tactical strategies in their “*modus operandi*”, but also a “re-think” of how much they could gain from a greater and stronger Russia-Norway cooperation, especially as Russia resumed strategic bomber flights along the Norwegian coast in 2007.⁶⁰ On April 30th 2010, the two countries agreed to end the dispute over the Barents Sea, dividing the contested sea-bed in half and promising to co-manage the resources that overlap within the boundary.⁶¹

The Danish conceptual ambivalence

The Danish conceptual ambivalence is presented by its mixed prospects for the Arctic. It is asserting its military presence in the High North, but is also facing the full

⁵⁸ Alister Doyle, *Oslo sets limit on Arctic seabed, short of North Pole*, (Accessed May 3, 2010), Available from: <http://byers.typepad.com/arctic/2009/04/oslo-sets-limit-on-arctic-seabed-short-of-north-pole.html>

⁵⁹ Paal Sigurd Hilde, *Norway and the Arctic: The end of dreams?* (Accessed May 3, 2010), Available from [http://atlantic-](http://atlantic-community.org/index/Open_Think_Tank_Article/Norway_and_the_Arctic%3A_The_End_of_Dreams%3F)

[community.org/index/Open_Think_Tank_Article/Norway_and_the_Arctic%3A_The_End_of_Dreams%3F](http://atlantic-community.org/index/Open_Think_Tank_Article/Norway_and_the_Arctic%3A_The_End_of_Dreams%3F)
⁶⁰ Ibid.

⁶¹ Michael Byers, *It's time to resolve our Arctic differences*, (Accessed May 4, 2010), Available from: <http://byers.typepad.com/arctic/2010/04/its-time-to-resolve-our-arctic-differences.html>

“Self Rule”⁶² agreement with Greenland and the possibility of its independence. The Danish Defense Commission set up in 2008⁶³ analyzed implications for the Danish security of Arctic developments with respect to energy, minerals, and supply. The same year, Greenland and Denmark released a Joint Strategy Paper for the Arctic for further cooperation and greater presence in the region. As a matter of fact, the Danish government recently announced that it would expand its permanent military presence in the Arctic. The plans involve the establishment of a joint-service regional command in the Faroe Islands, in the North Sea, and the expansion of an existing military base in Greenland at Thule. This U.S. Air Force base since World War II is the home of the 821st US Air Base Group and is a monitoring station for the Pentagon’s Ballistic Missile Warning System. The base also houses facilities for the U.S. military’s spy satellite program.⁶⁴ The Danish military, in cooperation with the Canadian Coast Guard, have carried out exercises on both coasts of Greenland and the Northwest Passage as part of *Northern Deployment 2009* that consisted of a joint SAR exercise in Lancaster Sound with two Danish naval vessels and a reconnaissance aircraft. Despite their disagreements, on April 2010, both countries conducted, for the first time, a joint military exercise for search and rescue operations.⁶⁵ The Danes see such exercises, that are part of a continuous Danish presence in the Arctic and are of benefit to local people, as part of

⁶² Greenland Self Rule Commission, 2008.

⁶³ The Danish Defense Commission 2008. (Accessed May 1, 2010), Available from: http://www.fmn.dk/eng/Defence%20Commission/terms_refence/Pages/default.aspx

⁶⁴ Niall Green, *Denmark to open Arctic military command*, (Accessed May 3, 2010), Available from: <http://www.wsws.org/articles/2009/jul2009/arct-j22.shtml>

⁶⁵ *Canada, Denmark team up for military exercise* (Accessed May 3, 2010), Available from: <http://www.cbc.ca/canada/north/story/2010/03/22/north-military-canada-denmark-sovereignty.html>

their responsibility in the region, but it is clearly evident that they are also a useful tool for sovereignty assertion.⁶⁶

Denmark, together with Russia and Canada continue to claim the North Pole, the Danish are great proponents of the median line method that would divide the Arctic waters between countries according to their length of nearest coastline. This would give Denmark the Pole itself, due to its proximity to Greenland, while Canada would gain significant territorial waters. It is worth noting that no country can really own the North Pole as countries are not allowed to possess full sovereignty more than 12 nautical miles from shore. Only sovereignty rights can be obtained outside the 200 nautical miles, and thus, enabling the acquisition of exclusive rights to exploit the resources of the seabed of the North Pole, however, the area itself remains part of the high seas.⁶⁷ In addition, Denmark has two mild disputes with Canada over Hans Island, located between Greenland and Canada's Ellesmere Island.⁶⁸

The prospects of further exploration for gas and oil fields in Greenland's west and east coasts, constitute a greater incentive for the Danish to further develop cooperation with Greenland and to seek great economic collaboration. Under an auspicious Danish approach, the Illulissat Declaration⁶⁹ took place on Danish territory in 2008 - this meeting was exclusively reserved for the five polar coastal states. The meeting resulted in a solemn declaration in which the participants acknowledged the existing legal

⁶⁶ *Denmark's Arctic assets and Canada's response*, (Accessed May 1, 2010), Available from: <http://www.casr.ca/id-arcticviking-northern-deployment-09.htm>

⁶⁷ Michael Byers. *Who Owns the Arctic?: Understanding Sovereignty Disputes in the North*, (Vancouver: Douglas & McIntyre, 2010) p.7.

⁶⁸ *Canada, Denmark team up for military exercise*, (Accessed May 4, 2010), Available from: <http://www.cbc.ca/canada/north/story/2010/03/22/north-military-canada-denmark-sovereignty.html>

⁶⁹ Illulissat Declaration 2008, (Accessed May, 5 2010), Available from: http://www.oceanlaw.org/downloads/arctic/Illulissat_Declaration.pdf

frameworks, (i.e. UNCLOS) as a sufficient tool to solve disputes through dialogue, cooperation, and negotiation.

The American freezing status quo

America's purchase of Alaska from Tsarist Russia for the sum of \$ 7.2 million was an incredible geo-strategic move representing for the U.S. a strategic, economic, naval, and, air potential expanding "from the diamond fields of the Northwest Territories to the oil fields of Alaska's North Slope".⁷⁰ Despite this outstanding strategic move conducted in the past, it seems that the U.S. is now frozen in outdated policies concerning the Arctic region. On January 9, 2009, the administration released the National Security Presidential Directive 66/Homeland Security Presidential Directive 25 (NSPD 66/HSPD 25)⁷¹, which established a new U.S. "Arctic Region Policy" drafted in order to identify important challenges in the High North, but the document does not go further and provide clear outlines for action. The Policy does, however, stress the high priority of the region for national and homeland security, and highlights the usefulness of multilateral cooperation. The document continues by recommending ratification of the UNCLOS in order to have a more decisive role in international policymaking and to strengthen its claims to extend its EEZ. Finally, the Policy highlights the importance of keeping the Northwest Passage as an international strait, which is in agreement with the EU, but in stark contrast to Canadian interests.

⁷⁰ Barry Scott Zellen, *Arctic Doom, Arctic Boom: The geopolitics of climate change in the Arctic*, (Praeger; 1st Ed. 2009). p 22

⁷¹ National Security Presidential Directive 66 and Homeland Security Presidential Directive 25, January 9, 2009.

Currently, the U.S.'s endorsement of the Ilulissat Declaration is of little importance as it is outside the legal framework and thus, it cannot protect or enhance U.S. sovereignty or security issues in the High North. The Declaration cannot guarantee unilateral rights and jurisdiction in offshore zones, protect U.S. maritime research interests or allow the use of strategic waterways for U.S. military forces.⁷² Also, the U.S.'s intelligence community's Global Trends 2025 includes a brief discussion on strategic implications of an opening Arctic.⁷³ Moreover, and for the first time, on February 1, 2010, the Department of Defense provided in its new Quadrennial Defense Review (QDR), an endorsement of U.S. accession to the Law of the Sea Convention during the Obama Administration.⁷⁴ However, the declining condition and capacity of the U.S. ice-breaker fleet reflects the American disinterest about military or security threats emanating in the Arctic region and constitutes a great limit on U.S. science in the polar region.⁷⁵ In October 2009, the U.S. Navy released its Navy Arctic Roadmap which acknowledges its capabilities gap and proposes a five-year strategic plan to expand fleet operations, increase its presence, and adjust its naval combat effort into the north.⁷⁶ On May 3, 2010 U.S. Defense Secretary Robert Gates said, "I think the concerns about the Arctic are real ... we haven't done too much advanced planning in terms of additional ice breaker capability at least in the navy... this is something that we would clearly have to

⁷² Scott G. Borgerson, *Climate Right for U.S. Joining Law of Sea Convention*, (Accessed May 3, 2010), Available from: <http://www.oceanlaw.org/>

⁷³ *Global trends 2025: a transformed world*, p.53, (Accessed May, 2 2010), Available from www.dni.gov

⁷⁴ *Quadrennial Defense Review Report. United States Department of Defense*, p.86 (Accessed May 4, 2010), Available from: <http://www.nationaljournal.com/congressdaily/issues/graphics/Defense-Review-2010.PDF>

⁷⁵ *The Arctic Climate Change and Security Policy Conference: Final Report and Findings*, (2008), p.16. (Accessed May 4, 2010), Available from: http://carnegieendowment.org/files/arctic_climate_change.pdf

⁷⁶ Navy Task Force Climate Change, "U.S. Navy Arctic Roadmap," U.S. Navy, Washington, D.C, October 2009, p. 3.

address and invest some resources in, along with our Canadian friends”.⁷⁷ Despite its complicated position in the Arctic Council and its dual presence at the federal and state level (Alaska), the U.S. continues to be one of the strongest and well coordinated voices in the Arctic Council. The U.S. does have a long-running legal dispute with Canada in the lucrative Beaufort Sea spat. Canada insists the boundary should extend from the border between Alaska and Yukon. However, the U.S. disputes that the boundary should be drawn perpendicular to the coast, resulting in a border that extends further to the east, to the detriment of Canada. However, on March 2010, efforts to map the continental shelf in Arctic waters led by Canada and the U.S. have resulted in a changing picture of the region.

International law dictates that countries have the ability to extend their reach beyond 200 nautical miles if the sea-bed itself extends further. Such is the case in the Beaufort, which has brought to light that the American boundary, based upon their adoption of the principle of equidistance, beyond 200 nautical miles would take a more westerly trajectory due to Canada’s Banks Island. This revised trajectory gifts Canada more seabed under the American approach than would be the case under Canada's original proposal. “And that changes everything,” said Michael Byers, an Arctic sovereignty expert and professor at University of British Columbia.⁷⁸ The U.S. and Canada both now have the desire and the incentive to resolve this dispute, which will aid

⁷⁷ *More ice-breakers from Arctic*, (Accessed May 4, 2010), Available from: <http://www.news24.com/SciTech/News/More-icebreakers-for-Arctic-20100503>

⁷⁸ Michael Byers, *Solution in sight for Beaufort Sea spat*, (Accessed May 3, 2010), Available from: <http://byers.typepad.com/arctic/2010/03/solution-in-sight-for-beaufort-sea-spat.html>

slow negotiations in other areas, in particular the Canadian's asserted control of the Northwest Passage.

III – The aspirations of “Newcomers”

There has also been growing interests in the region from non-Arctic states and international bodies such as NATO, the European Union, and East Asian countries.

NATO

The Alliance’s involvement in the security of the High North is certainly at stake as five of the polar states (U.S., Canada, Norway, Denmark, Iceland) are members of NATO, including four out of five polar coastal states, namely U.S., Canada, Norway, and Denmark, currently engaged in the geopolitical race of who owns the North Pole. It is worth noting that the military “responsibility” of some of the Allies, such as the U.S. extends far beyond the geographical area designated in the North Atlantic Treaty. “The whole world is, at least formally, covered by the ‘Areas of Responsibility’ of the U.S. European Commander (USEUCOM) and his counterparts for the other regional Command areas. This includes even the North Pole, which was the visual center of World War II ‘global’ cartographic imagery”⁷⁹ and now is becoming once again a strategic area for military presence. “I would be the last one to expect military conflict—but there will be a military presence [in the Arctic]”⁸⁰ said former NATO Secretary General Jaap de Hoop Scheffer in 2009. Moreover, the current NATO Secretary General Anders Fogh Rasmussen predicted that soon, “we will also see climate change affecting our security — through humanitarian disasters, conflicts over arable land, and mounting competition for

⁷⁹ Alan Henrikson, *A Global Role for NATO?*, (informal speaking notes – 19 February 2010 – rev.)

⁸⁰ *Arctic’s Thaw Brings Security Risks for NATO*, (Accessed May 3, 2010), Available from: <http://warnewsupdates.blogspot.com/2009/01/arctics-thaw-brings-security-risks-for.html>.

natural resources".⁸¹ Also, in 2009 the NATO Defense College released a comprehensive communication for the Arctic after a round table on the Security of the High North.⁸² Furthermore in spring 2010, the NATO Parliament released a document that outlines the main actor's strategies, highlights territorial disputes in the Arctic region, and discusses NATO's role.⁸³ Needless to say, NATO is well aware of the challenges of the Arctic and the possible role the collective alliance could embrace within their boundaries and beyond the North Atlantic area. Concomitant with these conjectures, NATO has started to ask itself if it could be possible to adopt a more global approach to security.

NATO experts suggest focusing on the non-military related problems and threats that may arise due to the new geo-strategic dynamics in the Arctic region. Additionally, Alan Henrikson rightly pointed out that existing organizations are all continent-based whereas there is a growing need for parallel ocean-based organizations for international cooperation, including security cooperation.⁸⁴ In support of this, it is widely agreed upon that there will be an increased need for search-and-rescue facilities and operations in the Arctic. Consequently, the Alliance aspires to provide the necessary capabilities and the know-how in surveillance, search and rescue operations, as well as crisis-prevention and management as key components for the peace and stability of the Arctic. Also, Iceland, one of the NATO members and the only country that is entirely in the High North, advocates a NATO role in disaster relief operations or search and rescue at sea, and for a

⁸¹ Anders Fogh Rasmussen, NATO Secretary General, *NATO in the 21st Century: Towards Global Connectivity*, speech at the 46th Munich Security Conference, February 7, 2010. (Accessed May 2, 2010), Available from: http://www.nato.int/cps/en/natolive/opinions_61395.htm.

⁸² *Security prospects in the High North: geo-strategic thaw or freeze*, (Accessed May 2, 2010), Available from: http://www.ndc.nato.int/download/publications/fp_07.pdf

⁸³ NATO Parliamentary Assembly, 049 DSCTC 10 E, *Security at the top of the world: is there a role for NATO in the High North?* Spring Session, 2010.

⁸⁴ Alan Henrikson, *A Global Role for NATO?*, (informal speaking notes – 19 February 2010 – rev.)

greater use of the “Iceland-based radar systems (integrated into NATO’s Alliance-wide Integrated Air Defense System (NATINADS) comprising sensors and command and control facilities) [to] help the Alliance maintain awareness of the region”.⁸⁵ The Alliance’s presence in the region has been manifested by the military exercises called “Cold Response” which took place in Norway in 2010 for four consecutive years stressing the importance of preparedness and presence as a prerequisite to promote a sustainable stability in the region. It is worth noting that the first one had around 10,000 soldiers with the participation of 11 NATO nations. The fourth exercise held last month had approximately 8,500 soldiers with 14 nations participating.⁸⁶ In order to achieve the desired results, NATO has to keep in the back of its head, that any solution must recognize Russia’s role in the Arctic and foster an inclusive strategy for Russian participation.

The European Union

The European Union is inextricably linked to the Arctic region by a unique combination of history, geography, economy, and scientific achievements and has enough reasons to be interested in the Arctic. First of all, three of its member states – Denmark, Finland and Sweden – are members of the Arctic Council and the Danish territory of Greenland constitutes a pivotal area in the High North. Secondly, one of the most assertive voices in the Arctic has been Norway, a country that belongs to the

⁸⁵ NATO Parliamentary Assembly, 049 DSCTC 10 E, *Security at the top of the world: is there a role for NATO in the High North?* Spring Session, 2010.

⁸⁶ *Cold Response 2010*, (Accessed May 4, 2010), Available from: <http://www.mil.no/ovelsr/cr10/english/start/fact/article.jhtml?articleID=192974> and

European Economic Area (EEA) and actively participated on the drafting of the Arctic Communication. Adding to the list, Iceland is planning to apply for early entry to the EU. This move would definitely give the Union a foothold towards a more concrete Arctic policy.⁸⁷ In 2008, the EU's High Representative and the European Commission on "Climate Change and International Security" acknowledged the new geo-strategic dynamics of the Arctic region and the importance of the accessibility to the hydrocarbon resources. It urges the adoption of "binding international standards" to regulate the extraction of Arctic petroleum reserves. The European report also urged that European "member states and the community should defend the principle of freedom of navigation" (including freedom from transit fees) "and the right of innocent passage in the newly opened routes and areas".⁸⁸ A follow-up of this report is scheduled for June 2011. On March 10, 2010 the EU High Representative for Foreign Affairs and Security Policy, Catherine Ashton, addressed the European Parliament on issues related to the Arctic, confirming the EU's political and economic interests in the region and opening the discussion among the MPs who actively support a greater involvement of the EU in the region – only a small minority opposed such move.⁸⁹

Under the 5th and 6th Framework Programs, the EU has devoted more than 200 million euros to polar-related issues and has expressed its full commitment to the International Polar Year. The current 7th Framework Program addresses large research

⁸⁷ Alyson Bailes, *How the EU could help cool tempers over the Arctic*, (Accessed May 3, 2010), Available from: <http://www.europesworld.org/NewEnglish/Home/CommunityPosts/tabid/809/PostID/518/HowtheEUcouldhelpcooltempersovertheArctic.aspx>

⁸⁸ Communication from the Commission to the European Parliament and the Council - The European Union and the Arctic region, Brussels, November 20, 2008.

⁸⁹ European Parliament Plenary Session, (EU) EP/Arctic: Ashton Confirms EU's Political and Economic Interests in Arctic, *Quotidien Europe* No. 10096, March 12, 2010.

topics relevant for the Arctic region. The recently launched Integrated Maritime Policy may play a pivotal role for the Arctic as the main framework for EU activities in the fields of maritime transport, fisheries, environmental protection, energy, sea/deep sea international legislation and Arctic-related developments.⁹⁰ The EU continues its full support to existing frameworks like the UNCLOS, the Arctic Council, and the Maritime International Organization for the reinforcement of shipping codes. The EU has applied for a permanent observer status at the Arctic Council and wishes to contribute to a sustainable exploitation of Arctic resources. However, there has been some resistance to including the EU in the Arctic Council. In April, 2009, Nunavut Premier Eva Aariak stated that the EU should not be allowed to join the Arctic Council, given its proposal to ban the import of seal products.⁹¹ Therefore, The Union should re-address the trade ban on sealskin and shrimp exports and court Greenland to oblige its economic zone to the EU's fisheries management policy. If the EU can take onboard these concerns the necessary "Arctic window" may be achieved.

The Asian Interest

The Asian interest in the Arctic is growing very rapidly. South Korea are getting ready to build ice-capable vessels; the Japanese are heavily investing on research on how to use gas hydrates as an energy source; and the Chinese are investing heavily in polar research and have sent their latest Arctic research vessels to the Arctic. If the Northern

⁹⁰ Adele Airoidi, *The European Union and the Arctic: Policies and Actions*, Nordic Council of Ministers, Copenhagen, 2008. p. 51

⁹¹ *Nunavut premier wants EU barred from Arctic Council*, (Accessed May 4, 2010), Available from: <http://byers.typepad.com/arctic/2009/04/nunavut-premier-wants-eu-barred-from-arctic-council.html>

Sea Route becomes navigable, other powers such as China and Japan are expected before too long to join in the game.

China's voracious appetite for oil and natural gas has raised concerns from the main polar Arctic states. As a matter of fact, China was in the agenda of topics to discuss among foreign ministers from Russia, the United States, Canada, Denmark and Norway at the meeting in Chelsea, Quebec held on March 29, 2010.⁹² Interestingly, this non-Arctic nation possesses the world's largest non-nuclear powered icebreaker, the Snow Dragon, which currently is used solely for scientific research. China's major Arctic interest concerns the shipping routes being opened by the melting sea-ice. The Chinese envision different routes to be used for various purposes. For instance, [LNG] from the Barents Sea [could] be sent to Shanghai through Russia's Northern Sea Route; luxury German cars will go straight 'over the top'; and Chinese goods headed for the eastern U.S. will use the Northwest Passage".⁹³ Beijing is looking to provide more funds for polar research. In the same way, Chinese scholars are increasingly pushing the government to develop an Arctic strategy as it hopes for permanent observership in the Arctic Council.⁹⁴ However, Chinese officials are taking cautious steps towards a greater involvement in the Arctic as they want to avoid unfounded alarmism among polar states. The same way, China is aware of its size and its importance and therefore, it does not want to be excluded from access to the High North.⁹⁵ President Hu Jintao stated in 2009,

⁹² Michael Byers, *China is coming to the Arctic*, (Accessed May 3, 2010), Available from: <http://www.ottawacitizen.com/technology/China+coming+Arctic/2738221/story.html>

⁹³ Michael Byers, *China is coming to the Arctic*, (Accessed May 3, 2010), Available from: <http://www.ottawacitizen.com/technology/China+coming+Arctic/2738221/story.html>

⁹⁴ Linda Jakobson, *China prepares for an ice-free Arctic*. SIPRI Insights on Peace and Security, No. 2010/2, p.12.

⁹⁵ *Ibid.*, p.12.

“When determining the delimitation of outer continental shelves, the Arctic states need to not only properly handle relationships among themselves, but must also consider the relationship between the outer continental shelf and the international submarine area that is the common human heritage, to ensure a balance of coastal countries’ interests and the common interests of the international community”.⁹⁶ Thus, Beijing believes that the Arctic affairs are not purely regional issues, but international ones.

East Asian states are conscious that the new opportunities arising as a result of an ice-free Arctic could deepen cooperation among them as China, Japan, and South Korea are all in the same boat. Therefore, a unified Arctic strategy would be in their mutual interest with a genuine win–win situation especially for China and Japan, which in so many other areas find it difficult to arrive at common ground.⁹⁷

It is clear that all polar coastal states and non-Arctic players want a bit of the Arctic these days. All of them have developed well defined strategies, presence, and interest in the region. These policies, however, do not have a clear meaning until they are put into a theoretical context, which will demonstrate the relevance of the polar coastal states approaches and the newcomers’ assertiveness through a strategy of games for a new role in the High North.

⁹⁶ Ibid., p.10.

⁹⁷ Ibid., p.13.

IV – Games of Strategy in the High North

A New Arctic Chessboard?

From a more sophisticated angle, we now take a closer look at strategy of games, based on the assumption of actors rationales in a situation of competition. With this analysis, each actor tries to maximize gains or minimize losses contributing to the development of a matrix for the Arctic that could provide a framework for decision making.

Most strategic interactions consist of a mixture of conflict and common interests. The idea is that all players should get into an agreement about what everybody should do, balancing their mutual interest in maximizing the total benefit and their conflicting interests in the division of gains. This is analogous to Rousseau's "Stag Hunt"⁹⁸ where if all the hunters cooperate to trap the stag, they will all eat well. However, when agreements have a tentative-basis, it becomes tempting to explore alternatives which are not ideal for all. For example in our analogy if one of the hunters defects to chase a rabbit, then the stag will not be caught. Cooperative and non-cooperative agreements can be the outcome of such interactions. The former will produce a collective cooperation whereas in the latter "cooperation will emerge only if it is in the participants' separate and individual interests to continue to take the prescribed actions". Therefore, there are several possible outcomes to our analogy (1) cooperation to trap the stag (cooperation of the polar states); (2) some chase the rabbit while all others remain at their posts (some polar nations act independently or allow access to external actors); (3) all chase rabbits

⁹⁸ Brian Skyrms, *The Stag Hunt and Evolution of Social Structure*, (Cambridge University Press 2004).

(an every man for himself situation resulting in a race to the Arctic with a high risk of conflict).

This simple analogy of course does not accurately reflect reality as it assumes that all actors have the same preference order. In an idealistic world, if we exclusively consider the polar coastal states and neglect their disputes over borders and resources, then one could imagine the case where each polar coastal state has the primary preference of precluding additional actors from asserting their authority on the Arctic region. Obviously, an increased numbers of actors would inhibit the control and access to resources of the polar nations. This approximation also holds when considering all outside actors whose primary goal would be to increase their presence in the Arctic region and gain access to natural resources, sea lanes, fish stocks, and greater influence. However, combining the two approaches makes the situation more complex and introduces an element of conflict between the polar coastal states. Additionally, this model relies upon the assumption that all polar coastal states are in complete harmony and agreement, which, as outlined earlier is not the case at present, despite some promising developments by Norway and Russia to resolve four decades of border disputes⁹⁹ and the rescue and surveillance military exercises between some of the polar coastal states.

Alternatively, we could consider games such as chess, where finding a complete solution becomes more difficult as “White opens with a move and Black responds”, leaves little room for causal chance, as all the moves are visible, and thus the only option

⁹⁹ *Russia and Norway strike Arctic Sea border deal*, (Accessed May 2, 2010), Available from: <http://www.reuters.com/article/idUSLDE63Q14D20100427?type=marketsNews>

left is to look at the consequences of your move, predict your adversary's move and hope for a good outcome to your game. In order to find equilibrium, each player will use the strategy that is the best response to the strategy of other. Note, that this equilibrium “evolves all the time as the successive moves are made and responded to”.¹⁰⁰ Intuitions, instincts, and perceptions will come into play. In this sense, elements of both (identification of patterns and opportunities versus peril) and science (forward-looking calculations of the possible outcome arising from certain moves) have a role in determining a player's move.¹⁰¹

The chessboard is a more accurate and realistic game theory description of the current geopolitics in the Arctic as opposed to Rousseau's “Stag Hunt”. The Arctic game is sequential and dynamic, as all Arctic actors have knowledge of each others previous moves, and their responses develop in a dynamic fashion as in a game of chess. The Arctic chessboard also has a cooperative element, as the players have the ability to make binding commitments enforced by a legal system (e.g. UNCLOS), in much the same way as each piece on the chessboard may only move within a well-defined area according to the rules of the game.

Exploring a tangent briefly, it is interesting to note that the geopolitics of the Arctic can be considered in significantly more detail by the adoption of metagame analysis or more specifically drama theory.¹⁰² A metagame is defined as a game the

¹⁰⁰ Ibid., p.33.

¹⁰¹ Ibid., p.77.

¹⁰² Nigel Howard, *Paradoxes of Rationality: Games, Metagames and Political Behavior*, (MIT Press.1971)

outcomes of which define the rules for another, ‘target’ game.¹⁰³ While a detailed analysis using this approach is beyond the scope of this work it is, nevertheless, interesting to draw basic comparisons with our situation in the Arctic. We find that in the target game we have two main players, in our case collectives consisting on one side of the polar coastal states and on the other side peripheral nations and bodies that are keen to develop their presence in the Arctic. Upon closer inspection, one can consider two ‘internal’ metagames between each group. On one hand you have the metagame between the polar coastal states involving disputes over sea-bed jurisdictions, natural resources, and opening shipping routes. The other metagame is played out between the external bodies and nations, the “newcomers”, such as the EU, China, and NATO who jostle for increased influence in the Arctic region of the polar coastal states and the Arctic Council.

An Arctic Chessboard Model

In response to reports concerning the possibility of conflict over sea-bed resources among the countries that border on the Arctic Ocean, in May 2008, the Danish organized a summit meeting of the Arctic Ocean, involving Russia, the U.S., Canada, Denmark (Greenland) and Norway, which was held at Ilulissat, Greenland. This summit culminated with the adoption of the Ilulissat Declaration¹⁰⁴ in which they reaffirmed their commitment to resolving their disputes peacefully within an existing framework of international law (i.e. UNCLOS) to delimit their respective areas of sea-bed jurisdiction. Interestingly, this summit excluded other members of the circumpolar world, most notably, Sweden, Finland, and Iceland. Moreover, on March 29, 2010, the Canadian

¹⁰³ Anthony Laden, *Games, Fairness and Rawls's A Theory of Justice*, Philosophy and Public Affairs, 20, No.3 (1991) p.189.

¹⁰⁴ The Ilulissat Declaration . Arctic Ocean Conference Ilulissat, Greenland, 27-29 May, 2008.

Minister of Foreign Affairs, Lawrence Cannon, invited the Foreign Ministers from United States, Russia, Denmark, and Norway to a meeting of Arctic Ocean coastal states in Chelsea, Quebec.¹⁰⁵ This meeting examined a wide range of emerging issues in which Arctic Ocean coastal states will have to define their “roles of responsibility” and find a way to cooperate in the near future. At this meeting other polar states were once again notable for their absence as Sweden, Finland, and Iceland together with other members of the Arctic Council were not invited. This in practice demonstrates the willingness of polar coastal states to discuss important issues and adopt a decision-making process mechanism among themselves leaving aside all the other actors interested in the region; even permanent members of the Arctic Council.

In light of these points we propose an “Arctic Chessboard” upon which the polar coastal states (U.S., Russia, Canada, Norway and Denmark through Greenland) adopt a unified “defensive” strategy against the “newcomers” (in which we also include Sweden, Finland and Iceland) who attempt to assert their influence on this group. An intuitive hypothesis would be that strong internal collaboration between the polar coastal states would limit the number of actors involved and thus, division of power and resources would be among fewer nations – meaning greater benefits for all polar coastal states. We explore this idea further using a game-theory approach to consider the hypothetical situation where decision making in the Arctic is based upon democratic voting of the citizens of each nation in a coalition of polar coastal states. We pose the question; Does

¹⁰⁵ Arctic Ocean: Foreign Ministers’ Meeting Chelsea, Quebec, Canada. 29 March, 2010 “Chair’s summary”. (Accessed May 3, 2010), Available from: http://www.international.gc.ca/polar-polaire/arctic-meeting_reunion-arctique-2010_summary_sommaire.aspx

internal collaboration and exclusion of additional actors result in the best interests of all nations comprising a coalition of polar coastal states?

A Mathematical Description of the Arctic Chessboard

We hypothesize the development of a cooperative coalition-based game where the organizational structure for the polar coastal states, is similar to that of the existing representation structure of the European Union where each country has a ‘voting weight’. Our approach will follow the proposition of two Poles Życzkowski and Słomczyński¹⁰⁶ where, based on the seminal work of the prominent English mathematician, Lionel Penrose¹⁰⁷, and later adaptations by John Banzaff¹⁰⁸, the voting power of a nation within a coalition may be calculated upon knowledge of only the nation’s population. This approach has two aspects; firstly the calculation of the voting weights for each nation and secondly, the setting of the threshold required to gain the majority. Here, we follow Penrose’s hypothesis that the voting weight is proportional to the square root of a nations population and furthermore, we set the decision making threshold to 62 % in agreement with the conjectures of Życzkowski and Słomczyński. We shall denote this approach as a P-62 model. A detailed derivation of these theories is not required here, but the

¹⁰⁶ Karol Życzkowski and Wojciech Słomczyński, *Voting in the European Union: The square root system of Penrose and a critical point*, (2004), (Accessed: May 9, 2010), Available from: <http://arxiv.org/abs/cond-mat/0405396>

¹⁰⁷ L.S. Penrose. *The elementary statistics of majority voting*, Journal of the Royal Statistical Society (1946), 109, p53.

¹⁰⁸ J. F. Banzhaf, *Weighted voting does not work: A mathematical analysis*, Rutgers Lab Review, (1965) , 19, p317.

mathematically inclined, inquisitive reader is referred to two excellent papers for further reading.^{109 110}

Once each country has been assigned a voting weight index, we introduce the notion of a coalition game and adopt a principle of game theory developed by Lloyd Shapley¹¹¹ to determine values to characterize the influence of each country to a coalition, based on the voting weight determined in the previous section. The Shapley value traditionally measures the value (or marginal contribution) of each player based upon their contribution to all possible coalitions. In other words, the Shapley value measures how the total worth of every combination of coalitions changes upon addition of a new nation, and then averages over all possible coalitions. In our case, we use the Shapley value to distribute the total influence in voting within a coalition of polar coastal states, to each nation, under the assumption that they all collaborate and that all citizens must vote either “yes” or “no”, i.e. abstaining is not possible. It is a "fair" distribution in that every nation will get at least as much or more influence than if they had not collaborated.

The power of the Shapley value approach lies in its simplicity and the fact that a single unique value is determined to quantify the outcome of the model for each nation. If we briefly look at the model from a mathematical perspective we can describe the influence that a specific nation (denoted, i) will have on a coalition through a single

¹⁰⁹ Werner Kirsch, *On Penrose's square root law and beyond*, *Homo oeconomicus*, (2007), v. 24, p.357.

¹¹⁰ Karol Zyczkowski and Wojciech Slomczynski, *Voting in the European Union: The square root system of Penrose and a critical point*, (2004), (Accessed: May 9 2010), Available from: <http://arxiv.org/abs/cond-mat/0405396>

¹¹¹ Lloyd S. Shapley, *A Value for n -person Game*, In *Contributions to the Theory of Games*, volume II, by H.W. Kuhn and A.W. Tucker, editors. *Annals of Mathematical Studies* v. 28, pp. 307–317. Princeton University Press, 1953.

parameter, ϕ . The calculation involves consideration of the value, (v) of all possible coalitions (S) , with a particular set of nations (N) that could be formed. (There will be 2^{n-1} coalitions). To this set of nations in each coalition we then add our nation under consideration, (i) , and assess the influence it would have on the existing coalition. If we perform this process randomly with a uniform distribution over our set of all possible coalitions, we arrive at an average value for the influence each nation will have on any coalition. This is described mathematically with the following formula:

$$\phi_i(v) = \sum_{S \subseteq N \setminus \{i\}} \frac{|S|! (n - |S| - 1)!}{n!} (v(S \cup \{i\}) - v(S))$$

Application of the Arctic Chessboard Model

Having defined our model we move on to construct several test-cases that could arise in the High North. We should again emphasize that our model relies on the assumption that upon formation of a High North coalition, any decision-making process must involve each citizen of the respective countries voting either “yes” or “no”, abstaining is not possible. Also, for the purpose of our investigations we shall consider Greenland as an independent nation from Denmark and the EU and assess the implications for Greenland to “go it alone”.

Upon inspection of Table 1, it is immediately obvious that the U.S., with the largest population, will have the largest influence on the vote while Greenland and Norway, with the smallest populations, are at the other end of the spectrum. The beauty of the P-62 system is that every citizen’s vote in every country will have the same overall

influence on a decision based on these weights.¹¹² When we combine this with the Shapely value listed in the final column we arrive at a quantitative description of the influence each country will have on a democratic vote that takes place after its addition to an existing coalition. It is interesting to note that although the population of Greenland is significantly lower than Norway, their influence on the voting process in a coalition is equal as the populations of both countries are too low to greatly impact on the required 62% majority.

	Population (millions)	Square Root of Population	Voting Weight (in %)	Shapely Value
U.S.	309.2	17.6	46.9	0.62
Russia	145.2	12	32	0.2
Canada	31.2	5.6	14.9	0.12
Norway	4.5	2.1	5.6	0.03
Greenland	0.06	0.24	0.6	0.03

Table 1: A coalition-based game of the polar coastal states. Each nation is assigned a voting power determined by the P-62 model and from this a Shapely value may be calculated to represent the fair allocation of voting influence obtained from a coalition of actors.

¹¹² Karol Zyczkowski and Wojciech Slomczynski, *Voting in the European Union: The square root system of Penrose and a critical point*, (2004), (Accessed: May 9, 2010), Available from: <http://arxiv.org/abs/cond-mat/0405396> p17.

A second test-case can be built where we hypothesize the addition of the EU to a coalition of the polar coastal states, table 2. With a population of approximately 501.3 million, the EU will become the most populated actor and therefore would have the greatest collective influence on a democratic vote of all citizens. This democratic process with each citizen having equal influence on the outcome of a vote is clearly detrimental to the large members of the polar coastal states as the addition of highly-populated actors results in a massive shift of power away from them. However, what is extremely interesting to note is that the Shapely value of Norway nearly doubles upon addition of a large actor. This makes perfect sense and is a fantastic example of the power of this model; clearly, as the number of powerful actors in a coalition increases then so does the competition between them and the votes of mid-sized nations become more instrumental in the success of a coalition.

Another interesting point is that if Greenland is an independent nation and the EU joins a High – North coalition then, Greenland’s Shapley Value drops to zero and they become a null actor as their voting influence is just too small to affect any coalition. It can therefore be observed that there are significant gains for Greenland by associating itself with Denmark (which has a population similar to Norway; see table 1) if large actors such as the EU are added to a coalition.

If we increase the population of an additional actor further, then the situation for the coalition is exacerbated, table A1 (see Appendix B). In the case that China would join the coalition; Canada, Norway and Greenland all become null actors with no influence on decision-making processes in the Arctic.

	Population (millions)	Square Root of Population	Voting Weight (in %)	Shapely Value
EU	501.3	22.4	37.4	0.38
U.S.	309.2	17.6	29.4	0.3
Russia	145.2	12	20	1.3
Canada	31.2	5.6	9.3	1.3
Norway	4.5	2.1	3.5	0.5
Greenland	0.06	0.24	0.4	0

Table 2: A coalition-based game of the polar coastal states upon addition of the EU. Each nation is assigned a voting power determined by the P-62 model and from this a Shapely value may be calculated to represent the fair allocation of power obtained from a coalition of actors.

As a final test-case we consider the situation where other members of the Arctic Council (Sweden, Finland and Iceland) are added to our hypothetical High North coalition of polar coastal states, Table 3. In contrast to addition of the EU or China, the populations of each of these countries are relatively small with respect to the existing members of the coalition and so, their effect on the overall balance of power is not as significant. Despite this, one interesting observation is that the introduction of these additional small actors favors only the Russians, whose influence on the vote has increased from test case 1 by 17.4 % with respect to the influence of the U.S. As the second largest actor, Russia's potential to form successful coalitions increases with a greater number of potential collaborating nations. However, this is not the case for the

U.S. whose decrease in Shapley value exclusively reflects the fact that they have a reduced proportion of the total number of citizens.

	Population (millions)	Square root of Population	Voting Weight (in %)	Shapely Value
U.S.	309.2	17.6	40.5	0.590
Russia	145.2	12	27.6	0.230
Canada	31.2	5.6	12.9	0.090
Sweden	9.3	3.1	7.1	0.040
Finland	5.4	2.3	5.3	0.030
Norway	4.5	2.1	4.8	0.030
Iceland	0.32	0.57	1.3	0.004
Greenland	0.06	0.24	0.6	0.004

Table 3: A coalition-based game of the polar coastal states upon inclusion of other members of the Arctic Council (Sweden, Finland and Iceland) into our hypothetical High North coalition. Each nation is assigned a voting power determined by the P-62 model and from this a Shapley value may be calculated to represent the fair allocation of power obtained from a coalition of actors.

Limitations of the Arctic Chessboard Model

Despite the simplicity of our approach we have demonstrated that combination of the P-62 model with a Shapley value analysis can powerfully predict the winners and losers in a coalition of the polar coastal states upon addition of new actors.

This approach, by relying on a representative allocation of power based on the populations of member states and assigning each citizen with equal voting power, makes these predictions from a single parameter: the population of each nation. Clearly this approach also has several limitations, (1) that decision-making in the Arctic will be democratic and not simply dictated by military power, (2) the citizens must vote and may only vote “yes” or “no”, (3) the accuracy of the model is entirely dependent upon accurate knowledge of a nations population which is complicated by migration and dual citizenship and (4) the influence of non-state actors such as NATO can not be described.

Moving Forward

The results of our Arctic games suggest that while certain polar states may benefit depending on the population and number of additional nations, the general best case scenario for them is to remain as a group of “5”. Moving forward from this conclusion, if the polar coastal states are to put up a united front several obstacles must first be overcome. Russia must put aside any thoughts on leaving the UNCLOS if its submissions are not fully recognized by the UN Commission and that the struggle for the hydrocarbon resources can be developed to the extent of military confrontation. Legal frameworks are accepted and recognized by all the coastal states, but the U.S., as a sufficient tool to solve disputes through dialogue, cooperation, and negotiation. Therefore, it is imperative the

U.S. ratifies the UNCLOS as not only it would benefit from greater participation and rights, but also it will increase the “stickiness” of the group to international laws. As Michael Byers pointed out, “It’s time to get off the snowmobile, sit down with our neighbors and work something out.”¹¹³

Norway is leading the push for collaboration among polar coastal states with their “cooler head” approach, which advocates for greater collaboration in all possible fields among the circumpolar states and envision the Russian-Norwegian partnership as precondition for successful implementation of its national strategy in the High North. This approach can be expanded to the other polar coastal states as they need to be a unified block if they want to keep the Arctic as an exclusive zone for the circumpolar states having the polar coastal states at the top of the policy-making process. Russia has achieved an incredible step forward by agreeing to split the difference with Norway over the Barents Sea, dividing the disputed seabed in half. If Russia and Norway have solved such a long-running dispute, there is no reason, why the other polar disputes cannot be resolved. The ongoing Russian patrol of Arctic waters and strategic bomber missions along the Norwegian coastline can take place in concomitance with other regional missions including the Danish military mission and the Canadian Coast Guards. This would also avoid awkward situations such as the flight of Russian bombers close to Canadian airspace during the visit of U.S. President Obama to Ottawa in February 2009. Polar coastal states must give great consideration to how much they could gain from a

¹¹³ Michael Byers, *It's time to resolve our Arctic differences*, (Accessed May 4, 2010), Available from: <http://byers.typepad.com/arctic/2010/04/its-time-to-resolve-our-arctic-differences.html>

greater and stronger cooperation with their neighbors as their responsibility in the region will increase as well as their sovereignty assertion.

The simplicity and flexibility of this model means that it would be easy to incorporate additional factors such as military power. For example, it would be possible to weight the square root of the population according to the size of the military budget. This would produce interesting results as it would probably propel Norway, with its large military budget and powerful armed forces, into third position behind the U.S. and Russia.¹¹⁴

¹¹⁴ These ideas will be developed further in future work.

V - Conclusion

In this work we have illustrated the importance of the Arctic region to many nations and international non-state actors, and have analyzed and discussed the current geopolitical situation unfolding in the High North. Through a detailed investigation of the strategy of games reinforced with multiple theories from the field of international relations and under the umbrella of a geopolitical scenario, it can be stated that polar coastal states are on the right track in minimizing their disagreements to perpetuate a new “cold” balance of power where they may dictate the rules of the game in the circumpolar region. This is clearly proved by the various benefits of collaboration and understanding found in the strategies and outcomes of our models outlined in previous sections. However and as clearly shown by the *savoir faire* of the newcomers, it will be very difficult to achieve this equilibrium in a “closed approach”. Arctic Newcomers are ready to move their pieces on this “New Arctic Chessboard” and will see any weaknesses or matters of dispute between the polar coastal states as opportunities to exert their influence. As such, newcomers will be able to destabilize the internal collaborations of the polar coastal states while at the same time ensuring the strength of their own position in order to maximize their gains. Therefore, collaboration and the presentation of a united front are imperative for the success of a proposed High North coalition between polar coastal states.

Beyond the scope of the chessboard developed for the purpose of this paper, a multi-sectoral approach including not only the five polar powers, but also other Arctic

states present in the Arctic Council, non-Arctic states, business entities, civil society, and even NGOs will have to find greater ways of interaction and communication to make the High North a win-win situation for all. Based on this conjecture future work could involve the development of a detailed game theory model involving meta-game analysis to completely map out the complex relations between all actors involve in the High North.

We conclude our work by reiterating that the Arctic region is constantly changing and the polar coastal states must be ready to face the challenges that will soon present themselves as the geopolitical environment develops. It is only when these scenarios arise that we can truly test the hypotheses presented in this paper, and as an Inuit proverb dictates: “Only when the ice breaks will you truly know who is your friend and who is your enemy.”

Appendix A – Arctic Map



Sources: Arctic Council; Norwegian Polar Institute; Permanent Participants of the Arctic Council, map by Winfried Dallmann; Canadian Ministry for Foreign Affairs and International Trade; International Boundaries Research Unit Database; University of Durham IBRU; national statistics departments; United States Energy Information Administration (EIA); National Oceanic and Atmospheric Administration (NOAA); Impacts of a Warming Arctic, Arctic Climate Impact Assessment (ACIA) Overview Report, Cambridge University Press, 2004; Vital Arctic Graphics, People and Global Heritage on our Last Wild Shores, Norway, UNEP/GRID-Arendal, 2005; Division for Ocean Affairs and the Law of the Sea, Commission on the Limits of the Continental Shelf (CLCS), United Nations; Norwegian ministries of energy and fisheries (Oslo, Norway); Alaska Science Forum, Geophysical Institute, University of Alaska Fairbanks.

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APPENDIX B – The Arctic Chessboard with China

	Population (millions)	Square Root of Population	Voting Weight (in %)	Shapely Value
China	1324.7	36.4	49.2	0.67
U.S.	309.2	17.6	23.8	0.17
Russia	145.2	12	16.2	0.17
Canada	31.2	5.6	7.6	0
Norway	4.5	2.1	2.8	0
Greenland	0.06	0.24	0.3	0

Table A1: A coalition-based game of the polar coastal states upon addition of China. Each nation is assigned a voting power determined by the P-62 model and from this a Shapley value may be calculated to represent the fair allocation of power obtained from a coalition of actors.

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