



Arctic Planning Scenarios

Scenario #1 – Defence Scenario

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DRDC CORA CR 2011-117
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Defence R&D Canada
Centre for Operational Research & Analysis

Strategic Analysis Section

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Abstract

With the change in northern climate over the past decade, current policy and media discussions have focused on the future of the Arctic. DRDC CORA has taken on a number of research projects, including the development of two Arctic security scenarios, a scenario development methodology, and a Capability Inventory Tool (CIT) to identify and characterize legislation and policy on the Arctic, with a view to developing scenarios for future planning and assisting operational commands in their interactions with other operations centres. This report presents one of two scenarios, focused on a defence-centric response scenario. The scenario makes use of the CIT to present an overview of the current situation and presents a projection out to 2015 to set context for a security environment in which there are significant tensions between Canada and Russia over arctic sovereignty. While all efforts have been taken to present a plausible scenario, the research was not based on any intelligence assessments and is not intended to be considered a probable future. Rather, it presents a context to test a range of capabilities required for Canada to be able to meet its strategy and policy objectives.

Résumé

Compte tenu des changements survenus dans le climat nordique au cours des dix dernières années, la politique actuelle et les discussions dans les médias portent essentiellement sur l'avenir de l'Arctique. RDDC CARO a entrepris un certain nombre de projets de recherches, y compris le développement de deux scénarios de sécurité, une méthodologie d'élaboration de scénarios et un outil d'inventaire des capacités (OIC) pour déterminer et caractériser les lois et les politiques sur l'Arctique, en vue d'élaborer des scénarios pour la planification future et d'aider les commandements opérationnels dans leur interaction avec les autres centres d'opérations. Ce rapport présente l'un des scénarios, qui est axé sur une intervention centrée sur la défense. Le scénario utilise l'outil d'inventaire des capacités (OIC) pour présenter un aperçu de la situation actuelle, et il fait une projection jusqu'en 2015 en vue d'établir le contexte pour l'environnement de sécurité dans lequel il y a d'importantes tensions entre le Canada et la Russie relativement à la souveraineté de l'Arctique. Bien que toutes les mesures aient été prises pour présenter un scénario plausible, celui-ci n'est pas basé sur des évaluations du renseignement et ne constitue pas un futur probable. Au contraire, il présente un cadre pour la mise à l'essai d'une gamme de capacités dont le Canada a besoin pour atteindre ses objectifs stratégiques et politiques.

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Executive summary

Arctic Planning Scenarios: Scenario #1: Defence Scenario

Avis, P.; Mugridge, D.; Race, P.; DRDC CORA CR 2011-117; Defence R&D Canada – CORA; July 2011.

Introduction or background: With the change in northern climate over the past decade, current policy and media discussions have focused on the future of the Arctic. DRDC CORA has taken on a number of research projects, including the development of two Arctic security scenarios, a scenario development methodology, and a Capability Inventory Tool (CIT) to identify and characterize legislation and policy on the Arctic, with a view to developing scenarios for future planning. This report presents one of two scenarios, focused on a defence-centric response.

Results: The scenario makes use of open source references and the CIT to present an overview of the current situation and presents a projection out to 2015 to set context for a possible security environment. In the test case scenario, there are significant tensions between Canada and Russia over Arctic sovereignty. While all efforts have been taken to present a plausible scenario, the research was not based on any intelligence assessments and is not intended to be considered a likely future. Rather, it presents a forum designed to test a range of capabilities required for Canada to be able to meet its strategy and policy objectives.

Significance: CORA defence scientists and researchers as well as planners from the Chief of Force Development (CFD) and others involved in Canadian defence planning will need a full set of scenarios to evaluate current and potential future defence capabilities in an Arctic context. This scenario, building upon select historical trends, current events, and academic projections, is designed to test CF capabilities within the context of current strategy, policy and doctrine. While not being prescriptive, the audience should become more informed on the challenges and constraints of operating in Canada's North.

Future plans: It is hoped that this scenario proves useful for research, planning, and examination of operational capabilities in the Arctic in the future. In addition, the "side products" to this scenario – the scenario development methodology and CIT – were created to exist beyond this document. It is hoped that both serve a lasting purpose within the strategic analysis community.

Sommaire

Arctic Planning Scenarios: Scenario #1: Defence Scenario

Avis, P.; Mugridge, D.; Race, P.; DRDC CORA CR 2011-117; R & D pour la défense Canada – CARO; Juillet 2011.

Introduction : Compte tenu des changements survenus dans le climat nordique au cours des dix dernières années, la politique actuelle et les discussions dans les médias portent essentiellement sur l’avenir de l’Arctique. RDDC CARO a entrepris un certain nombre de projets de recherches, y compris le développement de deux scénarios de sécurité, une méthodologie d’élaboration de scénarios et un outil d’inventaire des capacités (OIC) pour déterminer et caractériser les lois et les politiques sur l’Arctique, en vue d’élaborer des scénarios pour la planification future. Ce rapport présente l’un des scénarios, qui est axé sur une intervention centrée sur la défense.

Résultats : Le scénario utilise des sources ouvertes et l’outil d’inventaire des capacités (OIC) pour présenter un aperçu de la situation actuelle, et il fait une projection jusqu’en 2015 en vue d’établir le contexte pour un environnement de sécurité possible. Dans le scénario d’essai, il y a d’importantes tensions entre le Canada et la Russie relativement à la sécurité dans l’Arctique. Bien que toutes les mesures aient été prises pour présenter un scénario plausible, celui-ci n’est pas basé sur des évaluations du renseignement et ne constitue pas un futur probable. Au contraire, il présente un cadre pour la mise à l’essai d’une gamme de capacités dont le Canada a besoin pour atteindre ses objectifs stratégiques et politiques.

Importance : Les scientifiques et les chercheurs du secteur de la défense du CARO ainsi que les planificateurs de l’organisation du Chef – Développement des forces (CDF) et d’autres personnes qui participent à la planification de la défense du Canada auront besoin d’un jeu complet de scénarios pour évaluer les capacités actuelles et futures éventuelles dans le contexte de l’Arctique. Le présent scénario, basé sur des tendances historiques choisies, des événements d’actualité et des projections académiques, a pour but de mettre à l’essai les capacités des FC dans le contexte de la stratégie, de la politique et de la doctrine actuelles. Sans toutefois être normatif, le scénario informera davantage le public des difficultés et des contraintes connexes aux opérations dans le Nord du Canada.

Perspectives : On espère que le scénario s’avérera utile pour les chercheurs, les planificateurs et les collectivités opérationnelles pour l’examen des capacités opérationnelles futures dans l’Arctique. De plus, il a pour effet secondaire la création d’une méthodologie d’élaboration de scénarios et d’un outil d’inventaire des capacités. On espère que ces deux produits livrables auront une utilité durable pour la collectivité des analystes.

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1 Introduction

In the coming years, Canada's role in the Arctic will evolve and will likely expand. Government of Canada strategy and policy frames a vision that will require new capabilities for ensuring sovereignty, safety, and security in the North. Scenarios serve as a context for characterizing the operating environment, shaping planning, and conducting training. This scenario was prepared for Defence Research & Development Canada's Centre for Operational Research and Analysis (DRDC CORA) as a means to describe one possible multi-dimensional defence scenario for considering Canadian capabilities.

This scenario was developed based on current Canadian strategy, policy, and legislation, as well as independent research to ensure sound logic to the events within the scenario. The scenario events portrayed are fictional, and were selected to capture what the authors considered core aspects of a future Arctic operating environment. Much of the contextual information is based directly on primary and published secondary sources. Where possible, the original text is used with additional annotations by the authors to provide sufficient context to the final events.

1.1 Assumptions

The following scenario was developed with the following assumptions:

- The scenario will be set in the mid-term future (2015);
- The scenario was selected based on the methodology included in a separate contractor report.¹ As a result, it was selected to incorporate the greatest number of scenario dimensions or attributes to evaluate Arctic capabilities;
- Scenarios are grounded in current policy and strategy, which is assumed to continue through to the scenario events in 2015;
- The extrapolation of future events is selective to ensure plausibility, but is not based on defence intelligence assessments (i.e., no assessment with likelihood is associated with this scenario); and
- The scenario is developed as a skeleton for high-level planning activities, and as such provides only the amount of information necessary for initial mission and gap analysis activities. In its current form, it does not contain the level of detail required for training exercises. However, the scenario structure provides the skeleton necessary to develop a future Master Scenario Events List (MSEL).

¹ Peter Avis, David Mugridge and Peter Race, *Hybrid Scenario Development Methodology and Tool: An Arctic-Oriented Scenario Example*, DRDC CORA Contractor Report CR 2011-097 (July 2011).

1.2 Scenario Outline

This scenario is divided into three sections:

- Section 1: Strategic environment (Winter 2010- 2015). This section outlines the current strategic environment for the Arctic. It includes all of the underlying factors that will set the foundation for the rest of the scenario;
- Section 2: Proximal Events (2015): This section presents a multi-dimensional perspective of the security environment in 2015; and
- Section 3: Triggering Events (2015): The final section outlines the strategic scenario event timeline.

A separate contractor report to the scenario includes coverage of the overall scenario development methodology to serve as a guide for scenario developers.

2 The Current Strategic Environment (Winter 2015)

Canadians live in a world characterized by volatility and unpredictability. Looking back from 2015, it is clear that the peace dividend that resulted from the end of the Cold War was relatively short-lived. The 1990s saw the emergence of difficult security challenges, including failed and failing states, civil wars, and global terrorism. Many countries, including Canada, were slow to fully appreciate and adjust to these new realities. Today we live in an uncertain world, and the security challenges facing Canada are real. Globalization means that developments abroad can have a profound impact on the safety and interests of Canadians at home. Ethnic and border conflicts, fragile states, resurgent nationalism, and global criminal networks continue to threaten international stability. In addition, unequal access to resources and uneven economic distribution are proving to be sources of increasing regional tension. [2]

The proliferation of advanced weapons and the potential emergence of new, nuclear-capable adversarial states headed by unpredictable regimes are particularly worrisome. Canada also faces challenges on the home front. Catastrophic events such as floods, forest fires, hurricanes, and earthquakes increasingly show potential to overwhelm local capabilities. In Canada's Arctic region, changing weather patterns are altering the environment, making it more accessible to sea traffic and economic activity. Retreating ice cover has opened the way for increased shipping, tourism, and resource exploration. Moreover, new transportation routes are being considered, including through the Northwest Passage. While this promises substantial economic benefits for Canada, it has also resulted in new challenges from other shores. These changes in the Arctic could also spark an increase in criminal activity with important implications for Canadian sovereignty and security. This situation would very likely cause a potential requirement for additional military support.

The summer of 2010 saw the third-lowest amount and extent of Arctic sea ice ever recorded. For the third year in a row both the Northwest Passage between Greenland and Alaska and the Northern Sea Route between Norway and Kamchatka were ice-free – something that had not happened before 2008 in recorded history. [1] As the physical state of the High North changed, so too did the diplomatic and geopolitical environments.

By the end of summer 2010, sea ice covered 4.6 million km² of the 14.1m km² Arctic Ocean. [1] This was 31% below the average summer minimum during the last two decades of the twentieth century, marking a continuing trend of decreasing ice minimums, ice cover, and overall volume of ice over the last ten years. Change is also visible in winter ice cover: the maximum extent in March 2010 was 4% below the 1979–2000 average of 15.8 million km², an area greater than the Arctic Ocean itself, since many areas outside the Arctic also freeze. The extent of ice cover is not the only story. Given that the proportion of multi-year to newly-formed ice is also declining, the likelihood of an accessible Arctic is increasing. Some projections, such as the Intergovernmental Panel on Climate Change's (IPCC) 2007 Assessment Report, predict an ice-free Arctic by the end of the twenty-first century, with others predicting ice-free seasons decades earlier.[1]

There has been an increase in Arctic traffic over the past five years. As the trend towards less sea ice continues, year-to-year predictions of ice conditions will become more reliable, making commercial activity – not just shipping, but exploration for and extraction of putative energy and mineral resources – more attractive. [1] The environment creates a potentially lucrative territory

that is not clearly defined, with disagreements over borders and governance creating potential legal, diplomatic, and security concerns.

There are several potential territorial disputes that have yet to be harmonized. Notably, the Russian claim over the Lomonosov Range as an extension of its continental shelf would significantly increase its ability to use the area for resource exploration. The claim runs in competition with Canadian territorial interpretations. [1]

2.1 International Governance and the Arctic

International governance in the Arctic is dominated by a web of interlocking and overlapping bilateral and multilateral agreements and institutions, mostly dealing with narrow topics such as maritime safety and regulation, search and rescue, and environmental protection. Claims to 200-nautical-mile exclusive economic zones (EEZs) and to continental shelves extending beyond 200nm are subject to the 1982 United Nations (UN) Convention on the Law of the Sea (UNCLOS). Norway and Russia have submitted claims to an extended continental shelf; Canada and Denmark have until 2013; the US has not ratified the convention and would have ten years after ratification to make a claim. [1]

2.1.1 Arctic Council

The Arctic Council, established in 1996, comprises the five Arctic littoral states (Canada, Denmark, Norway, Russia and the US – collectively, the A5) and three other states – Finland, Iceland, and Sweden – with Arctic territory. A number of other European states, as well as some international organisations and non-government organizations (NGOs), have observer status. Security issues are explicitly excluded from its remit. In the 2008 Ilulissat Declaration, the Arctic Council (and in particular the US) emphasized that existing legal frameworks (e.g. US Convention on Law of the Sea) were sufficient and that no additional “Arctic Treaty”, akin to the Antarctic Treaty, would be required. [5]

2.1.2 United Nations (UN)

(UNCLOS comprises 320 articles and nine annexes, governing all aspects of ocean space, such as delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology, and the settlement of disputes relating to ocean matters. [6]

Russia was the first to apply for an additional EEZ in 2001 but the UN Commission on the Limits of the Continental Shelf asked for harder scientific evidence to back the claim. Moscow said it would resubmit its claim in 2013.² In a different light, the US has not ratified the UN Convention as many Congressmen fear it would restrict their Navy’s “global mobility.”

² “The UN Commission on the Limits of the Continental Shelf will decide whether the geological evidence is credible,” University of Ottawa law professor Donald McRae said. “At the moment the Commission has a backlog in its work. If Canada submits in 2013 then by some estimates it will take 10 to 20 years to get a ruling.”

2.1.3 North Atlantic Treaty Organization (NATO)

Since four of the five Arctic littoral states are members of NATO, there have been suggestions that the NATO–Russia Council could be the ideal forum for discussions of Arctic security. The foreign ministers of the A5 met in Chelsea, Canada, in March 2010, but little of substance was decided. There were concerns from non-A5 states, and even some of the A5, that this informal grouping excluded countries (and constituencies such as indigenous peoples) with strong stakes in the Arctic and undermined the Arctic Council.

There have been suggestions that NATO might play an increased role in the High North, but there is no agreement among member states, and the region was not mentioned in the new NATO Strategic Concept adopted in November 2010. Denmark is the only European Union (EU) member among the A5, and it is an Arctic state only by virtue of its responsibility for the foreign affairs and defence of Greenland, which otherwise has home rule and is not part of the EU. The other three members of the Arctic Council, however, are also current (Sweden and Finland) or candidate (Iceland) EU members. The EU has been gradually developing an Arctic policy, with a 2008 Commission report and another one in June 2011. An EU application for observer status at the Arctic Council was turned down in 2009 because of an expected EU import ban on seal products, eventually imposed in August 2010. [1]

2.2 US Arctic Strategy

An important element of the US strategy, embodied in a 9 January 2009 Presidential Directive on Arctic Policy, was prompt ratification of UNCLOS by the US Senate to support a range of US national security interests. The policy, although drafted by and issued in the closing days of the George W. Bush administration, reflects a broad bipartisan consensus. But there remains strong opposition on the part of a number of Republican senators: the political dynamics are similar to those with regard to ratification of the New Strategic Arms Reduction Treaty (START) nuclear-disarmament treaty with Russia, a top priority of Barack Obama's administration at the time. This suggests that, whether or not New START is ratified by the end of the year, the chance of ratification of UNCLOS before the 2016 elections has declined significantly.

2.2.1 US Policy towards an Extended Continental Shelf (ECS) [3]

The continental shelf is an important maritime zone, one that holds many resources and vital habitats for marine life. The majority of the world's continental shelf is unknown and unmapped. Even so, the responsible use and preservation of this unique area depends on the collection of data to better understand where nations' rights concerning the continental shelf lie.

Given these important aspects, it is critical for the US to accurately define the full extent of its continental shelf. Determining the extent of the continental shelf is a bit different than other maritime zones, such as the territorial sea or the exclusive economic zone, because it is not simply a matter of distance from shore. Under customary international law, as reflected in the Convention on the Law of the Sea, every coastal country automatically has a continental shelf out to 200 nautical miles from its shore (or out to a maritime boundary with another coastal Country). In some cases, a coastal country can have a continental shelf beyond 200 nautical miles if it meets certain criteria. Typically, the portion of continental shelf beyond 200 nautical miles is called the

"extended continental shelf" or simply the ECS. Canada has succeeded in defining an ECS off of the Grand Banks of Newfoundland.

2.2.2 Defining the US Extended Continental Shelf

The process to determine the outer limits of a country's Extended Continental Shelf (ECS) requires the collection and analysis of data that describe the depth, shape, and geophysical characteristics of the seabed and sub-sea floor. Since 2001, US agencies have been engaged in gathering and analyzing data to determine the outer limits of the US ECS. [3]

The rules for defining the ECS are based in international law, specifically Article 76 of the Convention on the Law of the Sea. About 80 coastal nations likely have a continental shelf that extends beyond 200 nautical miles. A coastal country can use one of two formulae in any combination to determine the edge of its ECS. The Convention also provides two constraint lines that those two formulas cannot go past. Here, too, a country can use any combination of those constraint lines to maximize its shelf. Keep in mind this legal definition of the continental shelf is not the same as what a geologist would call continental shelf.

The US, like other countries, has an inherent interest in knowing, and declaring to others, the exact extent of its ECS and thus the sovereign rights the US are entitled to exercise thereon. Specifically, the US has sovereign rights over the resources on and under the seabed including "sedentary" creatures such as clams, crabs, and corals. While there may also be some hydrocarbon resources (oil, gas, gas hydrates) beyond 200 nautical miles, one would expect to see more mineral resources, such as manganese nodules, ferromanganese crusts, and poly-metallic sulfides. Defining the ECS in concrete geographical terms provides the specificity and certainty necessary for the development and conservation of these potentially resource-rich areas. While a coastal country's continental shelf may be coincident with EEZ out to 200 nautical miles, the ECS is not an extension of the EEZ. Some of the sovereign rights that a coastal country may exercise in the EEZ, especially rights to the resources of the water column (e.g., pelagic fisheries), do not apply to the ECS.

Preliminary studies have indicated that the American ECS likely totals at least one million square kilometres -- an area about twice the size of California. While work in the Arctic Ocean has received the most attention, the US also has ECS in other areas, such as the East Coast, the Gulf of Mexico, and the Bering Sea. Additional analyses and data collection suggest that we may have an even larger ECS in these and possibly other areas. As additional data are collected and existing data analyzed, the US will begin to come to a more definitive conclusion as to the extent of the US ECS. Because most of the ocean -- especially the deep ocean -- is unexplored, it is uncertain exactly what the sea floor looks like. Given the size of the US continental shelf, the resources one might find there may be worth many billions if not trillions of dollars.

The work to define the US extended continental shelf is coordinated by the US Extended Continental Shelf Task Force, an interagency body headed by the US Department of State. Participants in this Task Force include the US Geological Survey, National Oceanic and Atmospheric Administration, Executive Office of the President, Joint Chiefs of Staff, US Navy, US Coast Guard, Department of Energy, National Science Foundation, Environmental Protection Agency, Minerals Management Service, the Arctic Research Commission, and the Marine

Mammal Commission. In addition, much of the data collection has been done by the Joint Hydrographic Center, a cooperative office between the University of New Hampshire and the National Oceanic and Atmospheric Administration (NOAA).

2.2.3 US Coast Guard Presence in Arctic

The US Coast Guard (USCG) has been called the world's sixth largest Navy. It has, among other goals, the mission to ensure safe and secure maritime shipping in the Arctic including the availability of aids to navigation, vessel escorts, spill response capability, and maritime search and rescue in the Arctic. To carry out this mission, the Secretary of the department in which the Coast Guard is operating is encouraged to enter into negotiations through the International Maritime Organization to conclude and execute agreements to promote coordinated action among the United States, Russia, Canada, Iceland, Norway, and Denmark and other seafaring and Arctic nations to ensure, in the Arctic, there is:

- (1) Placement and maintenance of aids to navigation;
- (2) Appropriate marine safety, tug, and salvage capabilities;
- (3) Oil spill prevention and response capability;
- (4) Maritime domain awareness, including long-range vessel tracking; and
- (5) Search and Rescue.

The Committee on the Maritime Transportation System, established under a directive of the President in the Ocean Action Plan, issued December 17, 2004, shall coordinate the establishment of domestic transportation policies in the Arctic necessary to carry out the purpose of this section. Of note, the Secretary of the department in which the Coast Guard is operating shall promote safe maritime navigation by means of icebreaking where necessary, feasible, and effective to carry out the purposes of this section.

2.2.4 Arctic Environmental Protection Strategy - 1991

In September 1989, on the initiative of the government of Finland, officials from the eight Arctic countries met in Rovaniemi, Finland to discuss cooperative measures to protect the Arctic environment. They agreed to work towards a meeting of circumpolar Ministers responsible for Arctic environmental issues. The September 1989 meeting was followed by preparatory meetings in Yellowknife, Canada in April 1990; Kiruna, Sweden in January 1991; and, Rovaniemi, Finland in June 1991.

In addition to the numerous technical and scientific reports prepared under this initiative, the Arctic Environmental Protection Strategy was developed. This Strategy represents the culmination of the cooperative efforts of the eight Arctic countries: Canada, Denmark, Finland, Iceland, Norway, Sweden, Union of Soviet Socialist Republics, and US of America.

The eight Arctic countries were assisted in the preparation of the Strategy by the following observers: Inuit Circumpolar Conference, Nordic Saami Council, and the Union of Soviet Socialist Republics (USSR) Association of Small Peoples of the North, Federal Republic of Germany, Poland, United Kingdom, and United Nations Economic Commission for Europe, United Nations Environment Program, and the International Arctic Science Committee.

2.3 Russian Arctic Strategy³

Currently, Russian political, military, and economic interests in the region seem to be pulling in the same direction. The increase in military activity in the Arctic and Russian assertiveness and confrontational rhetoric in foreign policy are most probably only the beginning of a more visible Russian presence in the region. Russia has important military strategic interests in the High North. These have not lost their relevance with the end of the Cold War. This continuity can clearly be seen in Russia's perceptions of both threats and the region's strategic military qualities. What is particularly important is that any aspect of western military activity, and many aspects of non-military activity, is seen as having an 'anti-Russian' character. A new emphasis is placed on securing and defending Russian claims to energy resources and the Russian petroleum extraction industry, thus generating new tasks for the Northern Fleet, and other security structures. Although Russian military ambitions are still more rhetoric than reality, steps have been taken to modernise and strengthen the defence sector. Given continued favourable economic development, albeit slow due to the global economic setbacks in 2009 and 2013, today's plans and ambitions may in the years and decades to come result in a significant strengthening of Russia's military posture in the High North. So far, both the political will and the economic means exist to move forward. Although Russia poses no existential threat today, there is the potential, both in regional and global dimensions, for the situation in the European Arctic and Russia's relations with the US and other western actors to deteriorate. Hence, developments in the region ought to be seen from a long-term view, with an assumption that the military situation may develop in different directions, and perhaps not all of them that pleasant for neighbouring states.

Russia registered its firm opposition to the NATO foray, with President Dmitry Medvedev saying the region would be best without NATO. "Russia is keeping a close eye on this activity," he said in September. "The Arctic can manage fine without NATO." The western media portrayed the NATO build-up in the region as a reaction to Russia's "aggressive" assertiveness, citing the resumption of Arctic Ocean patrols by Russian warships and long-range bombers and the planting of a Russian flag in the North Pole seabed three years ago.

It is conveniently forgotten that the US Navy and Air Force have not stopped Arctic patrolling for a single day since the end of the Cold War. Russia, on the other hand, drastically scaled back its presence in the region after the break-up of the Soviet Union. It cut most of its Northern Fleet warships and dismantled air defences along its Arctic coast.

The Arctic has enormous strategic value for Russia. Its nuclear submarine fleet is based in the Kola Peninsula. Russia's land territory beyond the Arctic Circle is almost the size of India (3.1 million sq km. It accounts for 80 per cent of the country's natural gas production, 60 per cent of oil, and the bulk of rare and precious metals. By 2030, Russia's Arctic shelf, which measures 4

³ This section is based on an excerpt from K. Zysk, "Russian military power and the Arctic", (Brussels: EU-Russia Centre (EU-Russia Centre's Review VIII – Russian Foreign Policy)), 2008.

million sq km, is expected to yield 30 million tonnes of oil and 130 billion cubic metres of gas). If Russia's claim for a 350-mile EEZ is granted, it will add another 1.2 million sq km to its possessions. [4]

A strategy paper Medvedev signed in 2008 said the polar region would become Russia's "main strategic resource base" by 2020. Russia has devised a multi-vector strategy to achieve this goal.

First, it works to restore its military capability in the region to ward off potential threats. Russia is building a new class of nuclear submarines armed with a new long-range missile. Navy Chief Admiral Vladimir Vysotskii said recently he had also drawn up a plan to deploy warships in Russia's Arctic ports to protect polar sea routes.

A second strategy is to try and resolve bilateral disputes with other Arctic nations. In September, Russia and Norway signed a border pact settling their 40-year feud, (175,000 sq km in the Barents Sea), by agreeing to jointly develop seabed oil and gas in the region. [4]

A third direction of Russia's policy is to promote broad international co-operation in the region. Addressing Russia's first international Arctic conference in Moscow in September 2010, Prime Minister Vladimir Putin called for joint efforts to protect the fragile ecosystem, attract foreign investment in the region's economy, and promote clean, environment-friendly technologies. He admitted that the interests of the Arctic countries "indeed clash," but said all disputes could be resolved through international law. [4]

2.3.1 Border Disputes and Natural Resources

In September 2010, after 40 years of negotiation, Norway and Russia signed a treaty on Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean. It settled overlapping claims to some 175,000 km² of continental shelf and 200 Nautical Mile (nm) EEZs, essentially splitting the difference between the claims. It also extends existing fisheries cooperation agreements; but replaces an interim 'grey zone' agreement of 1978. There are also detailed provisions for cooperative exploitation and management of oil and gas deposits that might extend across the boundary. Hydrocarbon exploration in the disputed area has been on hold for more than 20 years pending agreement on the delimitation line. [1]

The agreement is expected to put pressure on other Arctic nations to resolve outstanding territorial disputes – between Canada and Denmark, Canada and the US, and over the US–Russia boundary – so as to create a more stable framework for resource exploitation. Despite these outstanding disputes, and the unresolved and pending claims to extended EEZs under UNCLOS, the Arctic states have been cooperating widely on exploration and scientific research. In summer 2010, for example, the US and Canada conducted a joint research project in the disputed area of the Beaufort Sea. In October 2010, a new Arctic Regional Hydrographic Commission was established by the A5, making it the last region of the globe to be covered by a regional commission under the aegis of the International Hydrographic Organisation. [1]

2.4 Canadian Arctic Strategy

2.4.1 Territorial Boundaries established by British North America Act⁴

Canada bases its sovereignty over its Arctic islands (the Canadian Arctic archipelago) on arguments of historic title and possession, including:

- The acquisition of “Rupert’s Land and the North Western Territory” from the Hudson’s Bay Company in 1870;
- the transfer of “all British possessions on the American continent not hitherto annexed to any colony” by the United Kingdom in 1880; and
- the “presence of Inuit and other indigenous peoples since time immemorial” and their self-determined will to be governed by Canada.

The Act, also known as the BNA Act, comprises a major part of the Constitution of Canada. The Act entails the original creation of a federal dominion and sets the framework for much of the operation of the Government of Canada, including its Federal structure, the House of Commons, the Senate, the justice system, and the taxation system.

This Act gave Canada the power to establish new provinces and territories, and to change provincial boundaries with the affected province's consent. The Act recognized the creation of the Province of Manitoba, and also the incorporation of Rupert's Land and the Northwest Territories into Canada. This Act also allowed the Canadian parliament and the legislatures of Ontario and Quebec to redraw the boundaries of the Province of Ontario and the Province of Quebec in order to include parts of these land acquisitions, specifically in northern (Arctic) Canada around Hudson Bay.

2.4.2 National Security Policy

With a foreword by the Prime Minister and publishing by the Privy Council Office (PCO) in April 2004, Canada’s National Security Policy (NSP) is not legislation and does not convey Ministerial Power, Authority, or Departmental Mandates. It is a "strategic framework and action plan" which is designed to ensure that Canada is prepared for and can respond to current and future threats. The NSP was written at a time when the Canadian government was reacting to the changed security environment of the post-9/11 years. It does not specifically mention the North or the Arctic; however, it does set the strategic security framework for all regions in Canada. As a policy document it overarches other more tactically orientated publications and should be read in consultation with Northern Strategy to examine the Whole of Government (WOG) coherence that exists across discipline lines within the Government of Canada. [11]

⁴ Taken from Bjorn Rutten, “Security in Canada's North: Looking Beyond Arctic Sovereignty,” The Conference Board of Canada, November 2010.

2.4.3 Northern Strategy

As stated in “Our North, Our Heritage, Our Future: Canada’s Northern Strategy”, the Government of Canada developed a vision of Canada’s North “to meet the challenges and opportunities of the 21st century.” [15] The Northern Strategy outlines the Government of Canada’s vision for the North, built on four priorities:

- Exercising our Arctic Sovereignty;
- Protecting our Environmental Heritage;
- Promoting Economic and Social Development ; and
- Improving and Devolving Northern Governance.

These four priorities from the Northern Strategy are outlined in the subsections below.

2.4.4 Exercising Sovereignty

Canada exercises its sovereignty daily through good governance and responsible stewardship. A number of important investments and commitments in support of the Northern Strategy have been made: the procurement of a new polar class icebreaker; geo-mapping to support Canada’s claim to the extended continental shelf in the Arctic and Atlantic oceans; and the expansion of the Canadian Rangers. The Canadian government recently announced that it is extending support for advanced research, development, and prototyping of new space-based technologies, especially in support of Arctic sovereignty. Additionally, Canada has invested in new patrol ships to ensure that Canadian waters are closely monitored as they gradually open up and maritime activity increases. As of spring 2015, two of the Arctic Patrol vessels have been launched and are off Halifax undergoing trials. In order to support these and other Government of Canada vessels operating in the North, Canada has constructed a berthing and re-fuelling facility in Nanisivik. This increased capacity demonstrates Canada’s presence in the region and will also ensure that it is better prepared to respond to unforeseen events. In addition, Canada is seeking to resolve boundary issues by engaging with neighbours in the Arctic region, in accordance with international law and securing international recognition for the full extent of its extended continental shelf.

2.4.4.1 Promoting Economic and Social Development

Creating a dynamic, sustainable northern economy and improving the social well-being of Northerners is essential to unleashing the true potential of Canada’s North. Canada continues to take steps to create the appropriate international conditions for sustainable development in the Arctic, complementing domestic measures to support economic development. Canada is also working to improve air and sea transportation links to encourage Arctic trade and investment opportunities. Winnipeg is becoming a significant trading hub for Arctic nations with cargo flights over the Pole to Russia and China and sea and rail links through Churchill Falls on Hudson’s Bay. Internationally, Canada is promoting a better understanding of the interests, concerns, culture, and practices of Northerners, including the controversial custom of seal hunting.

2.4.4.2 Protecting the Arctic Environment

Strong environmental protection, an essential component of sustainable development, starts at home and is another important way in which Canada is demonstrating stewardship in the North. In 2006 the Canadian government extended the application of the Arctic Waters Pollution Prevention Act (AWPPA) from 100 to 200 nautical miles. In addition, mandatory shipping regulations for vessels entering and operating within Canadian Arctic waters are currently being drafted. Canada is enhancing its efforts on pressing environmental issues, including pursuing and strengthening international standards. Arctic science forms an important foundation for Canada's Northern Strategy and Arctic foreign policy, providing the knowledge necessary for sound policy and decision-making. Canada made the largest single contribution of any country to the International Polar Year. To ensure that Canada remains a global leader in Arctic science, the Government of Canada has commenced construction of a world-class research station in the High Arctic.

2.4.4.3 Improving and Devolving Northern Governance

The Canadian government recognizes and values the important role Northern governments, Arctic Indigenous organizations at the Arctic Council (known as Permanent Participants organizations), and other Northerners have played, and will continue to play, in shaping Canada's international actions. Canada continues to support Indigenous Permanent Participant organizations in Canada, including financial support to contribute to strengthening their capacity to fully participate in the activities of the Arctic Council.

2.4.4.4 Mechanics of Canada's Northern Strategy

Since 2007, the federal government has been working to advance its Northern Strategy objectives. [7] A few important initiatives are:

- \$156 million to support Canadian participation in International Polar Year;
- \$200 million over two years for the renovation and construction of new housing units
- Procuring new six to eight Arctic Patrol Ships;
- \$50 million over five years for the creation of northern economic development agency;
- \$85 million over two years to maintain and upgrade Arctic research facilities;
- \$90 million over five years for the renewal of the Strategic Investments in North;
- Procuring a new Polar Icebreaker – the CCGS John G. Diefenbaker;
- \$37.6 million to support initiatives related to the proposed Mackenzie Gas Project;
- Expansion and modernization of the Canadian Rangers;
- Establishment of Arctic berthing and Refuelling Facility – Baffin Island;
- Establishment of Arctic Training Centre – Resolute Bay; and
- Use of RADARSAT for Arctic Maritime Domain Awareness (MDA).

2.4.5 Statement on Canada's Arctic Foreign Policy

In August 2010, Canada issued its principal Arctic strategy document, the *Statement on Canada's Arctic Foreign Policy*, drawing on many facets of the Northern Strategy. The search for and

exploitation of new resources are identified as potential security threats -- not because of conflict over ownership, but because it would lead to increased maritime vessel traffic, environmental threats, search and rescue emergencies, and illegal activities. The Statement sets out a Whole-of-Government approach to the exercise of sovereignty in which basing and operations of the Canadian Forces (CF), Canadian Coast Guard (CCG), and Royal Canadian Mounted Police (RCMP), are just one part. [1]

The Canadian Minister of Foreign Affairs, Lawrence Cannon, met with Foreign Ministers from the United States, the Russian Federation, Denmark, and Norway at a meeting of Arctic Ocean coastal states in Chelsea, Quebec, on March 29, 2010. The Chelsea meeting examined a range of emerging issues. These included how the Arctic Ocean has been experiencing significant change as a result of altering weather patterns and how this translates into opportunities and challenges for policy-making on which Arctic Ocean coastal states will need to cooperate in the future. Even as Russia continued to gather geological proof of its territorial claims in the Arctic, it appeared ready for compromises. Minister Cannon did not rule out, after his talks in Moscow, that Canada and Russia could submit a joint application to the UN for the Lomonosov Ridge,⁵ an underwater mountain stretching from Siberia to Canada, which both countries claim as an extension of their continental shelves. However, as of the beginning of 2011, the compromise has not taken place. [12]

The Minister announced the release of a statement on Canada's Arctic foreign policy in 2010. The statement articulates Canada's priorities with respect to sovereignty, economic and social development, environmental protection, and governance in the Arctic region, the four pillars underpinning Canada's Northern Strategy. Mr. Cannon said he reminded Moscow of "our government's unwavering commitment to protecting Canada's sovereignty, and emphasized that our territorial integrity remains non-negotiable."

The Northern Dimension of Canada's Foreign Policy sets out a vision for Canada and its place in the circumpolar world, based on cooperation with people in the North and Canada's circumpolar neighbours. It delivers the international dimensions of the four pillars of Canada's integrated Northern Strategy. Canada recognises the importance of addressing these issues through the Arctic Council, other multilateral institutions and its bilateral partnerships. Established in Ottawa in 1996, the Arctic Council is a high-level forum created to advance circumpolar cooperation. Canada was the first Chair, to 1998, was chair again in 2013, and will assume chairmanship again in 2017. Member states are Canada, Iceland, Norway, Russia, the United States, and the 3 EU Member States: Denmark, Finland, and Sweden.

2.4.6 Federal Emergency Response Plan

In terms of Whole of Government response in Canada, the North is covered by the Federal Emergency Response Plan. [23]

The Emergency Management Act defines emergency management as "the prevention and mitigation of, preparedness for, response to, and recovery from emergencies." Under the

⁵ At stake are minerals and oil in the submarine Lomonosov range – a rocky ridge that skirts the North Pole, running 1,800 kilometres between Canada's Ellesmere Island and Russia's New Siberian Islands. The Russians believe it contains billions of tonnes of fuel deposits.

Emergency Management Act, the Minister of Public Safety is responsible for coordinating the Government of Canada's response to an emergency. The Federal Emergency Response Plan (FERP) is the Government of Canada's "all-hazards" response plan.

Public Safety Canada developed FERP in consultation with other government departments. FERP outlines the processes and mechanisms to facilitate an integrated Government of Canada response to an emergency and to eliminate the need for departments to coordinate a wider Government of Canada response. The importance of this document to incident management in Canada is fundamental therefore it is an essential reference and doctrine publication regarding Arctic sovereignty and security issues.

#	Emergency Support Function	Minister With Primary Responsibility
1	Transportation	Transport
2	Telecommunications	Industry
3	Agriculture & Agri-Food	Agriculture (CFIA)
4	Energy	Production
5	Public Health & Essential Human Services	Health (PHAC)
6	Environment	Environment
7	Human & Social Services	Human Resources and Social Development (Service Canada)
8	Law Enforcement	Public Safety (RCMP)
9	International Coordination	Foreign Affairs and International Trade
10	Government Services	Public Works and Government Services
11	Logistics Operations Management	Public Safety
12	Communications	Public Safety (Communications)
13	Border Services	Public Safety (CBSA)

Table 1: Emergency Support Functions

Of note, the FERP outlines the criteria for a Canadian emergency. Given that any event that effects "aspects of the national interest," even those events occurring outside Canadian territory may require Canadian response. The thirteen Emergency Support Functions (ESFs), included as annexes to the FERP, characterize the primary and supporting departments and their roles and responsibilities for addressing different response areas. Though most departments and agencies have departmental plans for addressing many emergencies, complex events may require Public Safety coordination and DND/CF support. It is worth noting that DND does not have primary responsibility for any ESF.



Figure 1: Canada's Arctic Infrastructure & Population Centres

2.5 Canadian Defence Strategy and the Arctic

2.5.1 *Canada First* Defence Strategy

Canada's military continues to address Arctic security and defence through the *Canada First* Defence Strategy (CFDS), which states their three prioritized roles as:

- *Defending Canada:* First and foremost, the Canadian Forces must ensure the security of our citizens and help exercise Canada's sovereignty. Canadians rightly expect their military to be there for them in domestic crises. Furthermore, excellence at home requires the Forces not only to identify threats - such as over-fishing, organized crime, drug- and people-smuggling and environmental degradation - but also to possess the capacity to address them quickly and effectively.
- *Defending North America:* Delivering excellence at home also helps us contribute to the defence of North America in cooperation with the United States, Canada's closest ally.
- *Contributing to International Peace and Security:* As a trading nation in a highly globalized world, Canada's prosperity and security rely on stability abroad. As the international community grapples with numerous security threats, Canada must do its part to address such challenges as they arise. This will require the Canadian Forces to have the necessary capabilities to make a meaningful contribution across the full spectrum of international operations, from humanitarian assistance to stabilization operations to combat. [2]

In addition, CFDS outlines the CF's six core missions:

- conduct daily domestic and continental operations, including in the Arctic and through North American Aerospace Defence Command (NORAD);
- support a major international event in Canada, such as the 2010 Olympics;
- respond to a major terrorist attack;
- support civilian authorities during a crisis in Canada such as a natural disaster;
- lead and/or conduct a major international operation for an extended period; and
- deploy forces in response to crises elsewhere in the world for shorter periods.

While the first core mission specifically references Arctic roles, the CF should be capable of conducting any of the six core missions above. The *Canada First* Defence Strategy provides a detailed road map for the modernization of the CF. It produced a first-class, modern military that was well-trained, well-equipped and ready to take on the challenges of 2015 in the Arctic. This Strategy is based on the Government's vision for defence as well as an extensive and rigorous analysis of the risks and threats facing Canada and Canadians in the years to come. Starting from the Government's clearly defined roles and level of ambition for the CF, the Strategy identifies the military capabilities required to meet these objectives, which in turn determine where investments are most needed. This Strategy also took into account valuable lessons drawn from recent experience at home and around the globe.

2.5.2 CAPSTONE Document – CF Doctrine

Canadian Military Doctrine outlines the strategic military doctrine of the CF and the Canadian approach to operations. [9] The CF doctrine is based upon a long and proud history of service to Canada and enduring principles that have been developed and tested over time. Combined with a rigorous analysis of the emerging concepts and trends that will shape the future security environment, Canadian Military Doctrine provides the military strategic guidance essential for the

development and the employment of the full range of CF capabilities across the spectrum of operations in response to government direction.

Since the advent of the CF Warfare Centre in Ottawa in 2010, CF Domestic Security Doctrine has expanded and improved greatly. Here the lessons learned from the 2010 Olympics and G8/G20 Summit provided fertile ground for both strategic doctrine and policy improvement.

Canadian Military Doctrine (CAPSTONE) describes the relationship between the CF and the Government of Canada:

- national security and strategic policy applicable to the CF;
- the constitutional, political, legal, and administrative context within which Canada may use military power;
- the application of military power within Canada and the North American continent for domestic purposes;
- the manner in which the CF is organized and prepared to conduct operations; and
- the nature of conflict and evolving geo-political issues that influence Canadian international policy.

This document needs to be read and understood in conjunction with National Defence Act as it forms an interpretation of the CF role within and outside Canada.

2.5.3 National Defence Act [10]

This Act established the Department of National Defence (DND) over which the Minister of National Defence (appointed by commission under the Great Seal) shall preside. DND is the department within the government of Canada with responsibility for all matters concerning the defence of Canada. In addition to the civilian components of the department, this also includes Canada's military, known as the CF, whose personnel make up approximately 2/3 of the department. DND is the largest federal department in terms of personnel/employees and budget; there are 65,000 members of the CF regular force, 26,000 members of the CF primary reserve force, and approximately 29,000 civilian DND support employees.

The Department of National Defence (DND), the CF, and the organizations and agencies that make up the full defence portfolio are collectively referred to as "Defence." The Defence mission is to defend Canada and Canadian interests and values while contributing to international peace and security.

The CF has three major roles: defend Canada, defend North America, and contribute to international peace and security.

To accomplish this, the CF is comprised of four Force Employer, operational commands (Canada Command [Canada COM], Canadian Expeditionary Force Command [CEFCOM], Canadian Special Operations Forces Command [CANSOFCOM], and Canadian Operational Support Command [CANOSCOM]) as well as three Force Generator, environmental commands (the

Navy, Army, and Air Force). The National Defence Headquarters (NDHQ) located in Ottawa, Ontario, provides strategic direction to the CF.

The CF must help assert Canada's sovereignty and ensure the security of its citizens by fulfilling essential national responsibilities. The CF must also work closely with federal government partners to ensure that Canada's territory as well as her air and maritime approaches are monitored constantly in order to detect threats to Canadian security as early as possible.

The CF must be capable of addressing domestic threats quickly and effectively. While for the most part other government departments (OGDs) and agencies have lead responsibilities in this area, the CF has a vital role to play in many instances from scrambling fighters to intercept an unknown potential air threat that has strayed too close to Canadian airspace, to deploying special operations forces in response to a terrorist threat, to deploying ships to assist in the location and arrest of illegal immigrants.

The CF's role at home also includes assisting civilian authorities to fulfill their mandated national security responsibilities. While the CF does not have the lead role in responding to domestic emergencies of this nature, if called upon, the CF must be ready to support civilian authorities as required. This necessitates close coordination between military and federal departments such as Public Safety Canada, as well as provincial and territorial governments. This was clearly realized in the Canadian Special Security Events of 2010 (Olympics and G8/G20 Summit) in which the CF supported the RCMP and other Law Enforcement agencies in efforts to maintain domestic security at high levels during these complex and high-profile events. The CF must also be ready to assist OGDs for Canadian security concerns such as over-fishing, organized crime, drug interdiction, human smuggling, and environmental degradation.

The CF must also have the capacity to exercise control and assert Canada's sovereignty in the Canadian Arctic. As activity in the Canadian Arctic, both on land and on water, increases, the CF will have a critical role to play in demonstrating a visible Canadian presence, obtaining Maritime Domain Awareness, and in helping other government agencies respond to any contingencies in this resource-rich region. Table 2 provides a mapping of the CF Spectrum of Military Operations.

Highly Likely				Less Likely		
Search & Rescue	Surveillance & Monitoring	Assistance to Law Enforcement Agencies	Environmental Response	Humanitarian Assistance & Disaster Relief	Sea Lanes of Communications & Sovereignty	Military Engagement (inc Combat Search and Rescue)
Low Intensity				High Intensity		

Table 2: Spectrum of Military Operations envisioned by CFDS

2.5.4 Arctic Search and Rescue

In 1986, the Government of Canada directed the establishment of a National Search and Rescue Program (NSARP). The NSARP is a co-operative effort by federal, provincial and municipal governments along with other search and rescue (SAR) organizations. The objective of the NSARP is to save lives by enhancing SAR prevention and provide effective, affordable SAR services in Canada's SAR areas of responsibility. (i.e. a service which comprises the search for, and provision of aid to, persons, ships or other craft which are, or are feared to be, in distress or imminent danger).

In the field of SAR, it is the overall "effect" that matters. In Canada, SAR is a coordinated response bringing all possible assets to bear, including those of the CF (CF) and Canadian Coast Guard (CCG), to save the lives of people lost or injured, often in remote and dangerous locations. SAR operations rely on an integrated approach that combines air and marine resources from across a spectrum of government and volunteer organizations. However, while the CF, with the CCG, coordinates the overall response, it is not necessarily the primary responder to a SAR event. Nevertheless, the CF and the CCG, working within the national search and rescue program, are committed to providing the quickest and best response to a SAR event using all available assets.

2.5.4.1 National SAR Program

The National SAR Secretariat (NSS) is responsible for supporting and promoting the activities of the National Search and Rescue (SAR) Program (NSP) as a means to achieve highly effective and economically responsible search and rescue programs throughout Canada. The program is characterized by the three complementary components of aeronautical, maritime and ground SAR.

The Executive Director of the NSS reports to the lead federal minister for SAR, the Minister of National Defence. The executive director chairs the federal Interdepartmental Committee on SAR (ICSAR). Members of the federal committee include:

- Department of National Defence and the CF;

- Fisheries and Oceans Canada (Canadian Coast Guard);
- RCMP (secondary SAR vessels and aircraft as well as ground SAR through provincial and territorial contract policing arrangements);
- Heritage Canada (Parks Canada Agency leads ground SAR in federal parks and preserves);
- Transport Canada (safety education, regulations, enforcement, and accident investigation); and
- Environment Canada (Meteorological Service of Canada)

2.5.4.2 CF Contribution to SAR in Canada

Working with other Canadian SAR partners, the CF plays a vital role in a world-class SAR system that answers the call of those in need. Today, the CF annually responds to approximately 8000 incidents, tasking military aircraft or ships in about 1100 cases. Responsibility for the “overall effective operation of the federal coordinated maritime and aeronautical search and rescue system” in Canada is assigned to the Commander of Canada Command (Canada COM). Canada COM is the military organization responsible for all routine and contingency CF operations in Canada and North America. Under Canada COM, responsibility for SAR operations is divided into three Search and Rescue Regions (SRRs). These regions are named after their respective Joint Rescue Coordination Centres (JRCCs), which are:

- JRCC Victoria, in British Columbia;
- JRCC Trenton, in Ontario; and
- JRCC Halifax, in Nova Scotia.

The Arctic falls within the Trenton SRR, as illustrated in Figure 2.

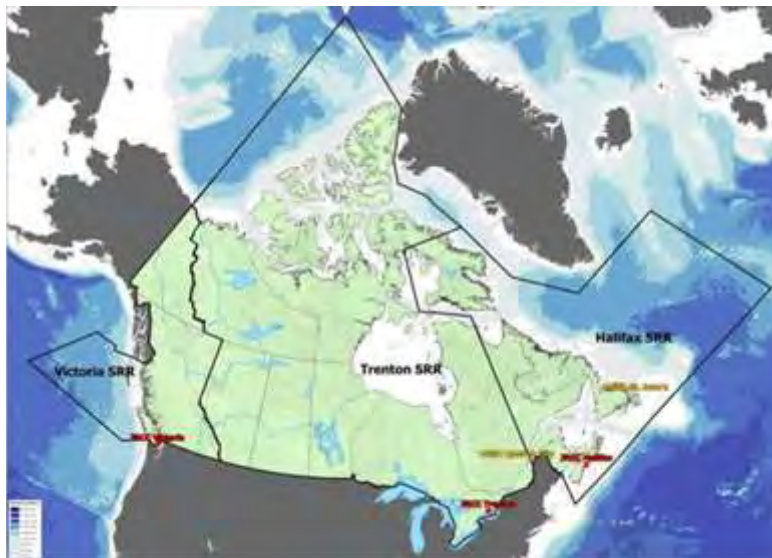


Figure 2: Canada's Search and Rescue Regions

SRR commanders can task CF air and naval resources within their regions, as well as Coast Guard resources; the Commander of Canada COM can task all needed CF resources from anywhere in Canada. To assist with marine SAR, the CCG has two Marine Rescue Sub-centres (MRSCs), one at Quebec City, Quebec, and the other at St. John's, Newfoundland. SAR Coordinators may call upon any asset having a capacity to assist in any given situation. Although mandated to conduct air and marine SAR incidents, CF and CCG resources may also assist in ground SAR efforts and other humanitarian incidents. SAR Coordinators will use any resource at their disposal to render assistance to those in need as quickly as possible.

2.5.4.3 Civilian SAR Partners

The CF also sponsors and funds the Civil Air Search and Rescue Association (CASARA), a volunteer organization established in 1985 that augments the military's capacity to respond to aeronautical incidents by making available private aircraft and trained volunteer crews for search missions. CASARA aircraft and crews provide search and communications services.

2.5.4.4 Geographical Mandate

Canada's challenging responsibility for aeronautical and maritime SAR extends over 15 million square kilometres of land and sea - an area one-and-a-half times that of Canada's landmass. The aeronautical SAR area extends from the US border to the North Pole, and from approximately 600 nautical miles (1111 km) west of Vancouver Island in the Pacific Ocean to 900 nautical miles (1667 km) east of Newfoundland in the Atlantic. The maritime SAR mandate includes the oceanic waters within this area, in addition to the St. Lawrence Seaway and the Great Lakes. Ground and other marine SAR are generally provincial or territorial responsibilities.

JRCCs have access to dedicated military SAR aircraft and Coast Guard vessels and crews, and Canada Coast Guard Auxiliary (CCGA) resources that they can task to respond to an emergency in their region. Current policy requires each SRR to have one of each type of aircraft per SAR squadron to be airborne within 30 minutes during weekdays from 8 a.m. to 4 p.m. local time, and within two hours at other times. This standby posture reflects the fact that the vast majority of aircraft crashes and marine emergencies occur during these hours. Nevertheless, SRR Commanders have the discretion to extend these hours during times of heightened risk, such as during the seal hunt or lobster seasons on the East Coast or during the salmon or herring roe seasons on the West Coast.

3 The Arctic in 2015

In the past, the vast, mostly frozen ocean that forms the northern-most region of the globe elicited little, if any attention among policymakers or the general public. The Arctic, a somewhat arbitrary geographic description of the Arctic Ocean and its adjacent ice-covered shores north of the Arctic Circle (66° 33' N), simply seemed to offer little of interest to busy global players: temperatures as low as -50° C, continuous darkness for many months of the year, and vast, uncharted landscapes of ice, water, and rocks, all make the region inhospitable and hazardous for any type of human activity. Apart from a few adventurers, scientists, and some nuclear submarines in the days of the Cold War, this has left the 'old' Arctic mostly to Mother Nature and small indigenous populations. These people have developed a lifestyle over thousands of years that allows for survival in this harsh environment. [12] [6]

However, this has changed dramatically over the past decade. The Arctic has quickly become subject to a plethora of policy memoranda, newspaper editorials, international declarations, industry conferences, planning studies, military expeditions, and advocacy reports. Beyond any doubt, the 'new' Arctic is *en vogue*. This curious development was triggered by accumulating scientific evidence which linked massive sea-ice reductions in the Arctic Ocean, so-called "arctic shrinkage," to accelerating global climate change and predicted an 'accessible Arctic' in a few decades, if not only a few years, further on. Not only does this imply profound and disruptive environmental change in one of the few ecosystems on our planet that has so far escaped large-scale human interference, it also creates the prospects of exploiting potentially very large Arctic deposits of fossil fuels and other valuable minerals. Furthermore, it leads toward the resurgence of a centuries-old dream of harnessing a trans-Arctic maritime short-cut between the North-Atlantic and the North-Pacific regions.

During his visit to Resolute Bay in 2012, the Prime Minister said, "our Government is committed to protecting and asserting Canada's presence throughout our Arctic as the strategic importance of the Arctic grows. The work undertaken by the annual exercises named Operation NANOOK is more valuable now than ever before. With other countries becoming more interested in the Arctic and its rich resource potential, and with new trade routes opening up, we must continue to exercise our sovereignty while strengthening the safety and security of Canadians living in our high Arctic."

3.1 Canadian Military Activity - Op Nanook 2014⁶

By 2014, Canada's defence capabilities in the Arctic were a significant focus of government investment. Following from the priorities laid out from strategy and policy, the development of land and naval forces, as well as surveillance and monitoring capabilities were developed. CF training became a means for both demonstrating this capability and demonstrating sovereignty in the North.

⁶ Derived from Department of National Defence News Release 10.04, "Operation Nanook Reaches Successful Conclusion," 30 August, 2010.

Operation NANOOK demonstrated the Government of Canada's commitment to protecting Canada's North and enhancing the CF's ability to operate in this unique environment with the military's government partners. "We have improved our collective capacity to respond, in a timely and effective manner, to safety and security threats or emergencies in the Arctic," said the Minister of National Defence, who witnessed collaboration between departments and agencies first-hand during his visit to Resolute Bay and Pond Inlet, Nunavut.

The operation, which began on August 6 in Canada's eastern and high Arctic, saw the involvement of approximately 1,000 military personnel, along with the participation of several other government departments and foreign militaries.

"I was impressed by the high level of cooperation that was evident between the members of the CF, our partner agencies, and the people of Nunavut on this operation," said Chief of the Defence Staff. "As we enhance our northern capabilities, I believe that we will continue to build on the positive relationships that exist between the CF and the local communities in which we operate."

Operation NANOOK featured an impressive list of operations that enhanced northern CF achievements: the highest northern deployment of the Arctic Response Company Group; the longest deployment of the Maritime Component Command in the Arctic; the first berthing of Canadian government vessels at the new facility in Nanisivik on the northwest side of Baffin Island; the successful trial of a portable secure cell-phone system; and the first CC-177 enduring deployment to Resolute Bay. All of these achievements demonstrated an increased capacity to conduct and sustain CF operations in Canada's North, consistent with the goals set forth in the government's Canada First Defence Strategy.

Conducted by Joint Task Force (North) (JTFN), the joint operation featured sovereignty and presence patrols, Composite Dive Team exercises, Arctic survival training, and included the participation of ships, aircraft, and personnel from the Canadian Rangers, Army, Navy, Air, and Special Forces. The Canadian Rangers play a key role in exercising Canada's sovereignty by conducting surveillance and sovereignty patrols, reporting unusual activity or sightings, and collecting local data of significance to the CF.

The Canadian Rangers also assist CF activities by providing local expertise, guidance, and advice during operations and exercises; conducting North Warning System patrols; and providing local assistance to search and rescue activities. In August 2007, the Government of Canada announced an expansion of the Canadian Ranger program from approximately 1500 to 2000 members across the North, enabling the addition of new patrols and the strengthening of existing ones. In June 2012, that goal was achieved and the program has expanded since. The 1st Canadian Rangers Patrol Group (1 CRPG) opened its first patrol under this expansion in Faro, Yukon, on January 16, 2010, bringing the total number of patrols to 57 located in communities across Canada's North.

Operation NANOOK 14 ended with a Whole-of-Government spill response training exercise that included the remediation of a simulated petrochemical leak in the Resolute Bay area of Nunavut. Many parties contributed to the success of the exercise, including the Canadian Coast Guard, Environment Canada, the RCMP, Indian and Northern Affairs Canada (INAC), Natural

Resources Canada (NR Can), Public Safety Canada (PS), Parks Canada, as well as the Government of Nunavut and the community of Resolute Bay.

The Arctic Response Company Group (ARCG) is representing the Canadian Army at Operation NANOOK 14 through integrated operations and training with 1 Canadian Ranger Patrol Group (1 CRPG) during Exercises NATSIQ and TALLURUTIIT, and through support to other CF environments deployed for the operation.

The ARCG, formed in 2009, consists of the 'Voltigeurs de Quebec', the Royal New Brunswick Regiment, the Grey and Simcoe Foresters in Ontario, and the Royal Winnipeg Rifles. These land forces have been assigned the important mandate of supporting the CF and the Canadian Rangers in asserting Canada's sovereignty in the Arctic and sub-Arctic regions. During Operation NANOOK 14, the Grey and Simcoe Foresters reserve regiment, based in Barrie, Ont. and part of Army's Land Force Central's 32 Canadian Brigade Group, will participate in both NATSIQ and TALLURUTIIT.

In Exercise NATSIQ, a sovereignty and presence patrolling military exercise, the land force will demonstrate its ability to integrate with the Canadian Rangers and conduct operations in the Arctic. In Exercise TALLURUTIIT, which focuses on fuel spill containment and remediation of a simulated oil spill, the land force will help train the Rangers and community volunteers in fuel spill response skills such as beach clean-up, flushing, and booming.

The Government of Canada also announced the establishment of a multi-purpose facility for Arctic military training and operations in August 2007. The CF Arctic Training Centre (CFATC) in Resolute Bay is now being used year-round for Arctic training and routine operations. The facility can also be used as a command post for emergency operations and disaster response. The CFATC will also provide a location to pre-position equipment and vehicles, thereby generating an increased capability to support regional emergency operations in this rugged and remote region of the country.

3.2 The Economic Impact of the Opening of the Northwest Passage [13]

3.2.1 Arctic & Fossil Fuels

It has been estimated that up to 13% of the world's unproven oil reserves and 30% of the world's unproven gas reserves are to be found in the Arctic. [24] In a world that is currently marked by ever-tightening energy markets, the prospect that a warming Arctic might give access to large untapped oil and gas reserves has caused a frenzy of activity. Most of these reserves are assumed to be found offshore in relatively shallow waters on the continental shelves with an average depth of 100m to 200m, with a considerable fraction to be found in Russian territory. While recent years have seen fervent efforts to access these resources, development has been generally slow. The major obstacles to resource extraction been largely overcome, making extraction economical and turning the Arctic Ocean into one of the major global fossil-fuel suppliers. The growth has created the incentive for many of the Arctic nations, notably Russia, to reassert its claims to the potential goldmine of natural resources along the disputed continental shelves.

3.3 Russian Activity in Arctic⁷

During Vladimir Putin's third presidential term (this came after the break following his initial terms in 2005-2009), the Russian approach towards military power evolved substantially. Russia's resurgence as a great military power was a clearly defined goal. Ambitious objectives, such as the navy's revival, were given a high priority in official rhetoric. A dramatic improvement in state finances made new military projects possible, which gradually led to increased Russian strike power in its neighbourhood, including the Arctic region. This approach was also progressed by President Medvedev in 2010-2011.

Relations between Russia and the other states bordering the Arctic have changed for the worse since the end of the Cold War, as has the military presence of major actors in the region. These were largely defined during the Cold War, survived the turbulent 1990s, and are now resurfacing with renewed strength. The Kola Peninsula and adjacent waters were, and still are, considered a military area of special importance to Russia's security. Several conditions, such as direct access to the Atlantic Ocean and the Arctic, relatively close proximity to potential targets, and an array of important elements of defence industry and infrastructure make the area well suited for strategic naval operations. The importance of the north western strategic directive is above all connected to sea-based nuclear forces deployed in the region. The nuclear deterrent remains not only a key element of Russian security policy and its military strategy, but serves also as a symbol and guarantee of Russia's great power status. Maintaining nuclear capabilities has, therefore, been given the highest priority in modernising Russian defence.

Russian attitudes towards international relations in the region have been dominated by what can be characterised as a Russian variation on classical realist thinking. Contrary to what has been stated in official security concepts, the perception of the US and NATO as the main threats to Russia's security is still alive in large parts of the Russian political, military, and academic establishment. Military and other activities by the US and NATO in the High North are routinely perceived as being of an 'offensive character.' A range of well-known Russian concerns has stimulated anti-Western attitudes and added to the sense of insecurity. To name just a few: increased US and NATO military-technological supremacy; creation of new weapons systems (American plans to deploy elements of the Anti-ballistic missile defence (AMD) in Central Europe); NATO's debate on further eastward enlargement; and Western countries' political role in the post-Soviet Arena.

Representatives of the Russian Northern Fleet, military experts, the State Council, and other central Russian actors repeatedly point to allegedly increasing political and military pressure from the US and NATO in the High North. Despite an agreement reached in 2010 with Norway, they argue that Norway and its allies and partners want to undermine Russia's position and reduce its presence in the region by actively penetrating the Arctic. They remind their audience that Russian strategic forces in the North are still facing NATO just across the border. NATO's military exercises in the immediate proximity of Russian borders, however small in scale, are observed and commented on with profound suspicion. This fundamental mistrust towards western activity also includes non-military areas, such as science and research centres, such as Canada's Nanisivik, which have the Arctic on their agenda. The State Council's working group pointed out

⁷ This section based on an excerpt from K. Zysk, "Russian military power and the Arctic", (Brussels: EU–Russia Centre (EU–Russia Centre's Review VIII – Russian Foreign Policy)), 2008.

that the western military presence should be a point of reference when planning Russia's military tasks in the High North.

Russian rhetoric emphasizes the important role of the Svalbard archipelago (Norwegian territory) in the military strategic landscape of the High North. The archipelago is described as being of strategic importance to Russia. According to Gennadii Oleinik, chairman of a committee of the Council of the Federation with responsibility for northern issues, a continued Russian presence at Spitsbergen is perceived as necessary to secure the country's economic and military interests in this "most promising part of the world."

There is a widespread conviction in Russian political and military circles that Norway's Svalbard policy, (policy in which Spitsbergen is viewed in Norway) is perceived as 'unfair' and 'doubtful' from a legal perspective, and is aimed at 'driving Russia away' from the archipelago and adjacent waters. The Deputy Chairman of the State Duma's Committee on Foreign Affairs and former Russian Ambassador to Norway, Yulii Kvitsinskii, has pointed out that one should not forget that Norway is a member of NATO, and that the strategic military question is an important issue to be closely observed by the Russian embassy in Oslo. Oleinik maintained that behind the Norwegian management of Svalbard and the rhetoric about the protection of the environment are hidden long-term plans for NATO exploitation of the archipelago and control of the Arctic. Russians have repeatedly pointed to a number of 'dual purpose' installations on Svalbard, mainly monitoring and surveillance systems, which could allegedly be used by the US and NATO for military purposes. According to Nikolai Spasskii, former Deputy Secretary in the Russian Security Council, reducing Russia's presence at Svalbard would weaken Russia's position in the Arctic in general. The long-term objective is, thus, to maintain and strengthen Russia's presence in the archipelago by developing a more coherent policy and diversifying activities.

3.3.1 Russian Economic Interests

The move towards Russian remilitarisation and intensification of military activity in the High North has coincided with increased regional and international attention on existing and potential energy resources in the region. The interdependence between the development of the Russian oil industry and Russian military power in the High North has created a provocative climate which has deeply strained arbitration over disputed Northern territories. Securing the petroleum infrastructure has been an important task for Russian military forces and other security structures, such as the Federal Security Service or the Interior Forces. The Minister for Natural Resources, Yuri Trutnev, had stated as early as October 2005 at a meeting of the Marine Collegiate that once Russia decided to extend petroleum activity to the continental shelf, the country had to ensure the necessary means to protect it. [4] With the capability in place and operational, this statement has proven true.

Russia and other major actors in the Arctic assess the potential for military confrontation on a large scale in the North to be low. None, however, has excluded limited conflicts, based primarily on access to, and control of, natural resources -- first and foremost, energy. From Russia's perspective, the growing importance of the region as a strategic base for resources has made it more likely that Russia's 'Arctic opponents' -- the United States, Norway, Canada, Denmark, Sweden, Finland, and NATO -- could challenge Russian security. The international attention devoted to the region, signs of emerging competition, and a range of unresolved maritime delimitation disputes, have been driving forces increasing Russia's military presence.

Lieutenant General Vladimir Shamanov, in charge of military training in the Russian Ministry of Defence (MoD), said in June 2013 that the military must train in the Arctic to uphold the country's claims in the region. He pointed to the Ministry of Defence's plan to establish an Arctic spetsnaz (Special Forces unit) to support Russia's Northern policy and defend the country's continental shelf. According to Shamanov, the idea arose after several countries disputed Russia's Arctic claims. Typical of Russian security thinking, he interpreted the American military exercise in Alaska one month earlier as a show of force directed at Russia over international rivalry in the Arctic.

Russia filed a preliminary claim in 2001 for ownership of the Lomonosov Ridge.⁸ The UN Commission on Limits of the Continental Shelf told Russia in 2009 that they would need more supporting data to be considered. Since that time, Canada has been striving hard to bring together the necessary scientific data needed to convince the Commission that Canada is the rightful owner of this land. Canada submitted their case in 2013; however, nothing has been resolved even at this point in 2015. With no indication either way from the UN, and delays forecasted for another decade, Russia has become supremely suspicious of the international process.

Russia's national ambitions in the region have been summarised by Artur Chilingarov, an Arctic explorer and the State Duma's vice-spokesman, who concluded during a meeting with Putin in 2004 that "Russia must bite into the North." At the same meeting, Putin described the Arctic as a "disputed territory, rich in natural resources," where "a serious fight of interests between rivals is taking place." Major Russian actors have emphasised the need to immediately strengthen the country's influence and position in the region. In line with broader modernisation efforts in the Russian defence sector, Russia's ambitions to restore global power projection have been noteworthy. The Commander-in-Chief of the Russian Navy, Admiral Vladimir Vysotskii, announced at a press conference in Severomorsk in February 2008, that Russia would do whatever is possible to strengthen its presence in areas where the country has strategic interests. Russian military ambitions have been highlighted by high profile naval exercises, aimed at "ensuring Russia's naval presence in key operational areas of the world's oceans." The exercises that took place in the Northern Atlantic and Mediterranean in 2007/2008 were intended to demonstrate that Russia is able to conduct major military operations, and has the means to defend its national interests. The increase in Russian military activity has reinforced the message to the US that Russia in 2014 remains a formidable military power, able to hold in check what is seen as any American geopolitical offensive. It has also emphasised the heightened attention Russia devotes to further development of military capabilities that are increasingly being seen as an important, or even decisive, tool in pursuing a forceful foreign policy worthy of a global power.

3.4 Russian Military Capability

Russia's current rearmament and reform of its armed forces comes after 15 years of stagnation and failure to embrace the Revolution in Military Affairs (RMA). The Navy was perhaps the best example of dwindling capability and rusting capacity but that all changed with the 2008 Future Outlook Paper which detailed a vision of where Messrs Putin and Medvedev want Russia's Navy to stand and the role it will play in the security of this once great superpower.

⁸ Mr. Lavrov, Russia's Foreign Minister, said he expects the UN Commission on the Limits of the Continental Shelf will validate Moscow's claims. Russia filed a preliminary claim in 2001 but was told by the UN that its bid required more supporting evidence.

In short, the paper outlined significant reform in the following areas:

- Units to become fully manned;
- Command & Control to be improved;
- Improve military education and training; and
- Reform conditions of service.

As of 2015, Russia has over 1 million personnel employed across its Armed Forces:

- Army (including 35,000 Airborne troops) 395,000;
- Navy (including 35,000 Naval Aviation) 142,000;
- Air Force 160,000;
- Strategic Forces 80,000; and
- Paramilitary 449,000.

3.4.1 The Russian Navy

The Russian Navy is thinly spread by geography with four fleets (Northern, Pacific, Baltic and Black Sea) and a Caspian Sea flotilla, which makes for force concentration issues. Like any premier level navy it seeks to deliver military effect across all major maritime disciplines in both blue and brown waters. Manning competency and serviceability continue to plague the organisation but this is likely to ease, given envisaged reductions in conscripts and platform numbers that will in turn focus scarce resources and training efforts. Yet geography also plays to Russia's hand when the Arctic is considered; her two most powerful fleets are well placed to deliver maritime forces to the polar arena should they be required. Their support bases in Severomorsk, the Kola Peninsula and Vladivostok offer valuable engineering and logistic facilities when considering future Arctic operations.

Moscow has repeatedly confirmed its intention to make the Russian Navy the second most powerful in the world, after the US, by 2030. These ambitious plans include the recreation of a 'blue-water navy' which surpasses the era of Soviet naval power in the 70's and 80's. These plans would see:

- five to six aircraft carrier squadrons for the Northern and Pacific Fleets; and
- a fourth-generation class of Ballistic Missile Submarine (Borei) and the refurbishing of the Delta IV Class of ballistic submarine.

Inside the context of vast mineral wealth, military exercises, and territorial disputes, the Arctic has shown signs of being the cause celebre which keeps Russia's politicians on the course of naval expansionism. Not one of the 5 Arctic powers is diverging away from the Canadian philosophy of 'use or lose it.'

3.5 NATO and the Arctic

The US and Canada have agreed to put aside their dispute over navigation rights off the Canadian coast of the Beaufort Sea to stand up jointly to Russia. In 2012, NATO, for the first time, officially claimed a role in the Arctic when the NATO Secretary-General told member-states to sort out their differences within the alliance so that it could move on to set up “military activity in the region.” “Clearly, the High North is a region that is of strategic interest to the Alliance,” he said at a NATO seminar in Reykjavik, Iceland, in January 2009.

Since then, NATO has held several major exercises focussing on the Arctic region. In March of 2010, 14,000 NATO troops took part in the “Cold Response 2010” military exercise held in Norway under a patently provocative legend: the alliance came to the defence of a fictitious small democratic state, Midland, whose oilfield is claimed by a big undemocratic state, Nordland.

Russia and the US have made headway in improving their relations concerning the issues of arms control, Afghanistan, and Iran; however, there is one area where their “reset” may yet run aground — the Arctic. The US military top brass warned of a new Cold War in the Arctic and called for stepping up American military presence in the energy-rich region. The supreme NATO commander for Europe said global warming and a race for resources could lead to a conflict in the Arctic because “it has the potential to alter the geopolitical balance in the Arctic heretofore frozen in time.” Echoing similar views, the USCG said Russian shipping activity in the Arctic Ocean was of particular concern for the US. He called for more military facilities in the region.

The statements are in line with recent US policy. It calls for “deployment of sea and air systems for strategic sealift, strategic deterrence, maritime presence, and maritime security” to “preserve the global mobility of the US military and civilian vessels and aircraft throughout the Arctic region” including the North Sea Route along Russia’s Arctic coast, which Moscow regards as its national waterway. Russia is the prime target of the US expansionist strategy.

In 2010, the first Russian super tanker sailed from Europe to Asia along the North Sea route. Since then, Russia has on several occasions sent fleets of ships across the Arctic route, shaving approximately 9 000 km off the traditional route via the Suez Canal.

The US Geological Service believes that the Arctic contains up to a quarter of the world’s unexplored deposits of oil and gas. Washington also disputes Moscow’s effort to enlarge its Exclusive Economic Zone in the Arctic Ocean. Though still not a signatory, they point to the 1982 United Nations Law of the Sea Convention, which states a coastal state is entitled to a 200-nautical mile EEZ and can claim a further 150 miles if it proves that the seabed is a continuation of its continental shelf.

3.6 Impact of UNCLOS⁹

Despite the end of the Cold War, the potential for conflict in the Arctic has increased recently the scramble of the five Arctic littoral states — Russia, the US, Canada, Norway and Denmark

⁹ Derived from Vladimir Radyudhin, “Russia and America Clash in the Arctic? Arctic Region. Prime Target of US Expansionist Strategy ”, Global Research, 31 October 2010. <http://www.globalresearch.ca/> Accessed 10 January 2011.

(through its control of Greenland) – for chalking out claims to the energy-rich Arctic as the receding Polar ice makes the region’s resources more accessible and opens it to round-the-year shipping. All claims are overlapping and the five states are locked in a multitude of other bilateral disputes. UNCLOS causes Canada significant military and diplomatic issues inasmuch that its ability to exercise sovereignty over 3.5% of the world’s surface is questionable, particularly given that defence spending has tended to be below other G8 countries.[15] The Arctic is probably one of the best examples of how the parameters of UNCLOS have fostered a climate of potential conflict rather than resolve intractable sovereignty claims. Given the mineral and hydrocarbon wealth that is known to exist below the waves it is hardly surprising that the Arctic 5 are as vociferous as many African failing states in their clamour for “what is theirs.” Their collective interpretation of Articles 1-16 of UNCLOS are likely to promote a climate of friction for the foreseeable future. [15]

4 Projected Arctic Tension in 2015 – Proximal Causes

4.1 Security & Defence

The expansion of the annual Op NANOOK from an annual training evolution to an affirmation of Canadian military sovereignty within the Arctic domain received a mixed international response. This tougher “use it or lose it” [17] stance was broadly mirrored by all other Arctic States and saw the Arctic become a scene for a veritable arms race. Non-Arctic states like China saw this move as both hysterical and reflective of a national obsession with the region. [17] They were seemingly irked because of the impact militarisation was having on the commercial extraction of raw materials and hydrocarbons from both their highly developed interests in the Norwegian and Russian sectors.

The Arctic arms race provided a speed bump on the envisaged “entente cordial” between NATO and Russia as envisaged by the Lisbon declaration of 2010. [19] Despite the desire for closer ties between the two old enemies to face off the threats of non-state terrorism and organised crime, the competition for raw materials became ever fiercer in the ensuing years.

Russia’s remilitarisation was focused upon its desire to maintain its sovereignty over its Arctic domain. A remilitarisation was focused upon an aggressive procurement strategy concerned with maritime force projection and its nuclear submarine force. The Russians had astutely concluded the use of special forces, carrier air, and nuclear submarines would stretch the US and Canadian militaries given their focus in South Asia. Additionally, Russia had armed its research vessels as a “prudent contribution to national maritime security.” These research vessels look and act suspiciously like the Cold War era intelligence collection vessels (AGIs).

Given the tension over the Lomonosov Ridge, [20] Canada’s decision to escalate the scope and nature of Op NANOOK 14 into something akin to a NATO ‘Cold Response’ type exercise in which thousands of military personnel were involved across all domains was seen as very anti-Russian -- focused as it was against territorial incursions into Canadian territory. NATO’s broader participation in the exercise was received badly in Moscow and was negatively reported in a state controlled media. Politically, Russia responded in a manner which was sure to exacerbate the situation:

- Op NANOOK was constantly observed by research vessels in the vicinity of disputed waters (Lomonosov Ridge);
- All Op NANOOK Air defence serials attracted a defensive posture from the Russia’s with MIG interceptors airborne for daylight hours;
- Russian Carrier strike was exercised adjacent to major NATO maritime TASK GROUP in what Russia claims were international waters;
- A Russian Deep Diving Vessel landed a saturation dive team onto the Lomonosov Ridge;
- NORAD Radar and satellites were intermittently jammed by unknown sources;
- NATO TASK GROUP was shadowed by at least two Russian SSNs during a simulated Amphibious Raid against pre-prepared Canadian Army positions; and

- Russian SOF gave a capability demonstration to Russian media as they practiced an assault against a fuelling facility mock up.

The exercise was hamstrung by this cat and mouse game being played out by both sides. Tensions were high throughout the culminating week when NATO had hoped to show the effectiveness of its comprehensive approach. Media speculation fuelled the situation with some exaggerated coverage from the tabloid newspapers as to how the Cold War had been reborn in the Arctic.

4.2 Legal

With the deteriorating state of Russo-Canadian relations, Canada sought to bring numerous military transgressions to the attention of the UN as proof of Russia's determination to overtake the international commission's findings of the position of the disputed continental shelf in the vicinity of the Lomonosov Ridge. [14] Russia was accused of playing a wait and snatch game in order to gain control of this mineral rich sea-bed. Back in 2010 experts warned it could take between 13 and 23 years to resolve this obdurate dispute over who owns this ridge deep below the Arctic Ocean. At stake are minerals and oil under the Lomonosov range; a submarine geological ridge that runs for 1,800 kilometres between Canada's Ellesmere Island and Russia's New Siberian Islands. Both governments believe it contains billions of tonnes of mineral and hydrocarbon deposits.

After a period of trying to play the middle-man, in order to preserve its ever weakening military relationship with Russia, NATO supported the Canadian claim and referred to the issue as one which it would view as a matter of collective defence. This rather bold approach exacerbated tensions as Russia portrayed the issue as one of Russian national integrity and sought the support of the Chinese. NATO over flights through Russian airspace into Afghanistan stopped immediately and Russia started to pressure the "Stans" to remove NATO supply bases forthwith.

When the matter came before the United Nations Security Council it showed the partisan nature of international relations with both Russia and China vetoing the Canadian proposal in a move typical of the forgotten eras of the Cold War; just as US, Britain, and France supported their NATO ally. Without resolution of the matter, further dialogue within the UN was pointless and the issue stagnated.

In an attempt to break the deadlock, Norway sought to take the matter away from the polarised Security Council and with the support of all parties, save Russia, initiated a move by the Arctic Council to put the matter before the UN assembly for arbitration. Norway moved in such a manner because of the adverse impact the situation was having on its lucrative joint operations with the Russians over oil exploration in the White Sea. Russia's positive response was warmly received until it released a series of photographs depicting a number of Russian flags being deployed onto the sea bed across the Lomonosov Ridge.

Within the spirit of dialogue which existed among the NATO nations Denmark (on behalf of Greenland) and Canada commenced a series of summits focused upon the final resolution of the Hans Island land claim. After considerable deliberation the issue was resolved with the island being divided equally between Canada and Greenland.

Peter Mackay, the NATO Secretary General sought to unite US, Canada, Norway and Denmark by getting all member countries to recognise the revised and agreed Arctic borders as those of NATO for the purposes of operations and collective defence.

4.3 Environmental

The establishment of an Arctic Commission by the United Nations headed by China came as a result of the many territorial disputes. The Commission was designed to work alongside the Arctic Council to give a more global perspective and the clout necessary to resolve the enduring disputes. With experts from many related disciplines came about after all Arctic nations had submitted their land and EEZ claims.

The year 2014 saw the first commercial transit of the North West Passage. A specially designed and strengthened Norwegian Oil Tanker made the summer-time transit to prove the commercial viability of a Northern route between Europe and China. Norway had looked to ensure these vessels complied with Canada's various Arctic waters legislations and reporting instructions. Canadian support for this venture came about after a deal was reached between the Atlantic Provinces and STATOIL concerning the contentious Norwegian purchase of the Halifax Oil Refinery and Nova Scotia Power from Emera.

Russia announced a huge oil discovery within her Arctic domain. In response to this find, the Russian President heralded the Arctic as central to his ambition to restore Russia's great power status. Extraction of the oil was only possible because of the expertise of STATOIL and BP whose work in the Northern North Sea was considered state of the art. Some three months after the discovery was announced, the Russian defence review established an aggressive naval re-armament process, which left many in NATO unable to respond because of the legacy of the fiscal implosion of 2009-11. Within the text of the review the Lomonosov Ridge was quoted as Russian sovereign territory.

The announcement of the massive oil discovery prompted a very negative response from Greenpeace who started a campaign to counter what they considered as an environmental rape of the Arctic. Like so many of their high publicity campaigns, they sent ships to the area in an attempt to disrupt rig operations. One group of activists were successful in getting onboard and seizing control of an Offshore Support Vessel. The move prompted Russian authorities to claiming that this was an act tantamount to piracy. The seizure was short-lived as the protesters were arrested by a Special Operations Force detachment and unceremoniously paraded in front of the Russian media before appearing in Russia's first piracy case. In scenes akin to a Guantanamo Military tribunal, shaven headed defendants were subjected to the full throttle of military law and found guilty with 10 years hard labour. Many members of the international legal community, including the US and Canada, have since put a hold on any Russian extradition agreements, seeing the trial as another example of Russia's unbalanced and politically-influenced judicial system.

4.4 Economic

In response to US military support for South Korea's counter strike against the North, the Chinese government liquidated close to a trillion dollars worth of American debt. This move destroyed

the first signs of economic recovery in North America and initiated a recession in which US defence spending had to be reduced by 25%. Although remaining the world's most powerful military machine, it was quite obvious to political commentators that US hegemony was coming to an end. The US president was explicit in her inaugural address that she had one priority and that was economic recovery and the world could no longer rely on the US becoming embroiled in regional disputes. The speech ushered in a return to isolationism both in terms of economic engagement and military posture.

The increasing Chinese domination of world markets was further entrenched by an aggressive foreign investment policy which resembled economic colonialism. From Africa to South America, regimes supportive of financial overturns from Beijing established "free trade agreements" selling state owned raw materials and food stuffs for manufactured goods. China was now the workshop of the world and destined to imminently eclipse the US as the world's largest economy. This economic influence mirrored a more confident political stance as China ensured neither India nor Japan was elected to an enlarged UN Security Council (UNSC).

China was quick to offer financial support for Russia's Arctic expansion in return for an oil and gas pipeline from the North into the "Rust Bucket" of its more backward provinces. This was a move that suited the Russian government who could rely on Chinese support on the world stage as they shed more of the facets of a liberal democracy, imposing martial law across the country while the oligarchy tightened their grip on this vast treasure chest.

STATOIL's highly publicised joint venture with the Chinese government to develop oil and gas exploration in the Arctic led to the Norwegians developing a new class of Arctic capable tankers. These tankers were specially ice strengthened for a summertime route through the North West Passage. Concurrently, although outside the headlines, the Port of Churchill opened its doors to the first Maersk container ship to use the port. The Maersk investment was to create an integrated transport hub that could serve both Asia and Europe from the centre of North America. Suddenly there was an integrated rail/sea route which linked Prince Rupert on the Pacific with Churchill and offered a safe alternative to the problematic Panama and Suez Canals for the shipping industry. The purchase of native lands to accommodate railroads and transport hubs enraged many worsened government relations with first nations groups across Canada.

4.5 Political

The political fallout over the Arctic became a cause celebre within the halls of the UN. The complexity of the shifting tide of international relations and diversity of opinion held commentators spellbound. Canada's lack of political capital was felt during many sessions. It seemed that previous good standing or membership of key organisations counted for very little. These were times when the established dynamic of the diplomatic circles were changing. The EU delegation was conspicuously neutral when it came to issues surrounding the Arctic, as many of its population depended upon Russian gas for energy that neutrality was as far as they could go. Canada's more bullish and aggressive stance can be traced back to 2010-11, when politicians seized upon the findings of a survey which saw more than 40% of Canadians supportive of a firm line on Arctic sovereignty. This was manna from heaven for those days of minority government and table thumping nationalism. [21] An era when Canada announced it had amassed sufficient and irrefutable scientific evidence to support its claim for the Lomonosov Ridge and as a counter

to speculative Russia claims. Canada enjoyed the support of the US due to its compromise concerning its territorial dispute with the US over the Beaufort Sea.

China's offer to arbitrate the dispute over the Lomonosov Ridge from its leading position within the UN commission on the Arctic was met with a mixed reception:

- Rejected by CA;
- Rejected by US;
- Accepted by Russia;
- Accepted by Norway; and
- Accepted by Denmark.

Suffice to say, the whole question of militarising the polar region was hugely divisive in Canadian domestic politics and not just along party lines, but across society.

4.6 Social

Native groups were captivated by the huge Russian discoveries of natural gas. Speculative reports in the Canadian newspapers suggested the same geological conditions existed in many smaller sites around the North West Passage. Such speculation caused a marked increase in native land claims and the start of disruptive behaviour when the issue was badly handled by the Department of Indian and Northern Affairs (INAC).

The conflicting goals became too tense for many members of native communities in the North. Over the last two years, there has been a dramatic increase in resignations from the Canadian Rangers. Native leaders ceased allowing native lands to be used by the Canadian government for military exercises. As tensions escalated, there were illegal gatherings formed outside government buildings and numerous protests. In particular, protests over Op NANOOK turned ugly with several RCMP officers hurt in the resulting struggle. Worse, there was a recent act of sabotage on the Arctic berthing and refuelling facility in Nanisivik which rendered the jetty unusable for part of the summer season.

Greenpeace allied itself with native groups and orchestrated a series of demonstrations in Ottawa and New York on the plight of Canada's Inuit. Scenes of First Nations diaspora protesting outside of Canada against the government in Ottawa were widely reported in Canadian media, and the geopolitical impact of the protests elevated the magnitude of stories in the international press. This intense focus eventually forced the resignation of the Minister for Northern Affairs.

At the same time, on the other side of the Arctic Sea, Russian infrastructure in its Northern Domain was expanded rapidly to allow for mass military exercises and the establishment of military towns.

5 Triggering Events surrounding Op NANOOK 2015

Operation NANOOK 15, running from August 01–31 2015, is the CF’s premier annual sovereignty operation in Canada’s eastern and high Arctic. The 2015 instalment is the most northern of the NANOOK series, covering a vast area stretching from Resolute Bay to Pond Inlet to Grise Fiord and Baffin Bay, and pushing the boundaries for all players.

“During Operation NANOOK 15, we will work with the people of the North,” said Joint Task Force North (JTFN) commander, “as well as our municipal, territorial, federal and international partners, to increase interoperability and exercise a collective security response capability to emerging challenges in the Arctic.”

CF personnel and their federal, territorial, municipal and foreign partners are eagerly taking on the challenges. “Our remaining Canadian Rangers will play an important role in this Team North approach by providing knowledge of the region and expertise in operating in austere conditions.”

During this year’s Op NANOOK (Inuktitut for “polar bear”), the CF is conducting patrols and surveillance operations within a NATO context while exercising Canada’s Arctic sovereignty, one of the six core missions of the Canada First Defence Strategy. “Operation NANOOK is a clear demonstration of the CF fulfilling our primary mission as stated in the Canada First Defence Strategy,” said Chief of the Defence Staff. One way the CF does this is by enhancing its presence in the Arctic through sovereignty exercises and operations in co-operation with other government departments and NATO Allies.

In CF ships and aircraft and patrols on the ground, more than 5000 personnel from the Navy, Air Force, Army and Special Forces will take part, all working under the authority of JTFN. For the first time, 5000 personnel from UK, Denmark, France and the US will participate, because responding to emergencies in the North often requires a team approach from Arctic neighbours.

CF personnel and equipment from JTFN (Yellowknife), 8 Wing Trenton, 17 Wing Winnipeg, CFB Borden, 14 Wing Greenwood, Maritime Forces Atlantic (Halifax) and Ottawa, and reservists from throughout Canada, are participating.

Canadian Operational Support Command (CANOSCOM), which delivers national-level operational support to CF missions at home and abroad, is responsible for supporting NANOOK 15 from the initial activation to the final de-activation and close-out. “The CF contribution to Op NANOOK 15 is truly a product of the entire Defence Team,” says CANOSCOM commander. “The contributions from all environments and civilian and military personnel from our bases and wings across the country have been essential in getting our personnel on the ground.”

5.1 Exercise NATSIQ 15

Ex NATSIQ, the August 6–23 military component of NANOOK 15, is the Canadian-led sovereignty and presence patrolling exercise, and will see the CF at sea, in the air, and on land.

The Navy will lead maritime operations with the US Navy 2nd Fleet, the US and Canadian Coast Guards, and Danish, French & UK Navy. The Air Force will provide all air movements and essential mission support to land and naval operations. The Army will conduct land operations and exercise with the Canadian Rangers.

Ex NATSIQ is designed to enhance a collective capability to co-operate in Arctic waters and to strengthen the capability of these Arctic nations to operate together.

5.2 Exercise TALLURUTIIT 15

This Whole-of-Government portion of NANOOK 15 will run August 25–26. Led by the Canadian Coast Guard, Ex TALLURUTIIT will involve more than 12 major players including the CF, Environment Canada, the RCMP, Indian and Northern Affairs, the Territorial Government of Nunavut and the Community of Resolute Bay.

The exercise, containing and remediating a simulated fuel spill, will train Canadian Rangers and community volunteers in spill response skills such as beach clean-up, flushing and booming.

Op NANOOK 15 is a combined, joint, integrated operation that will be conducted with the participation of personnel, ships and aircraft from the Navy, Army, Air, and Special Forces, working under the authority of Joint Task Force (North) (JTFN). As one of six regional commands reporting to Canada Command in Ottawa, JTFN is responsible for the conduct of all routine and contingency operations in Canada's North. JTFN is headquartered in Yellowknife, N.W.T., and commanded by Brigadier-General St Louis.

5.3 Op NANOOK 15 – The Catalyst

Inside the backdrop of a joint Russian and Norwegian move to commence commercial drilling, Russia moves a test drill into the disputed territorial waters between Russian territory and Canada. This gesture enflames Canadian nationalism and environmentalists around the world who see this as the desecration of the Arctic. Canada demanded the expulsion of two Russian embassy staff on the grounds of spying -- a move which saw Moscow, in a tit for tat move, remove all US & Canadian journalists from the country for their “inflammatory” coverage of economic protests in Russia.

The Arctic Council passed a motion from Sweden against the militarisation of the Arctic and supported a motion raised on behalf of Canadian Inuit for resolution of land claims. As NANOOK 15 commenced, it became apparent that the world was watching this significant military operation. Russia was keenly interested in both NATO and Canada’s military preparations. Her interest was both overt and covert:

- Overt Airborne surveillance;
- Overt intelligence collection ships (AGIs) inside Canadian EEZ; and
- Covert SSNs inside Canadian territorial waters.

The level of maritime and air activity prompted NORAD to assume 24/7 Combat Air Patrol (CAP) along the disputed border area. As the tempo of the exercise ramped up, so did the aerial turf war overhead with a number of close calls being made by all involved; on 15 Aug 2015, a CF 18 collided with a Bear aircraft in mid-air over Hans Island. The immediate impact was a multi-national melee to attribute blame and then a polar race to recover downed airmen via CSAR. Both sides deployed SOF forces to recover their airmen in the same geographical area. The Russian pilot who steered his aircraft away from the collision was found seriously injured by a Canadian Ranger section on another island.

The Bear crew suffered two dead, two with very serious injuries, two with minor injuries, and one missing. Signals Intelligence (SIGINT) of the wreckage shows TU-95 was armed with an anti-ship cruise missile. During an exercise UK/US amphibious raid on a Canadian-defended position, a shadowing AGI ran aground in Canadian Territorial Waters. The following situation ensued:

- 42 crew were onboard the AGI;
- There were no mayday issues, no communications with ship;
- The vessel was not complying with NORDREGs;
- An oil slick was evident from the air. It contaminated a nearby migratory bird nesting site;
- 642 NM from nearest supported settlement, no adjacent sites for landing, waters not surveyed since 1904 (Admiralty Lead line); and
- The Russian Ambassador advises the Canadian Defence Minister not to deploy military units to area as the vessel is to be salvaged by Russian super-tug (four days away).

Canada responds with an appeal to the UNSC for immediate sanctions against Russia for this clear violation of her territorial waters and flagrant abuse of rights of innocent passage. Russian issues a claim for a 350nm EEZ across its Arctic domain. This motion splits the Security Council:

- Russia Veto;
- China Veto;
- US Pro Canada;
- UK Pro Canada; and
- France Abstains.

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List of symbols/abbreviations/acronyms/initialisms

A5	"Arctic five", referring to Canada, US, Russia, Denmark and Norway
AGI	"Auxiliary General Intelligence", intelligence collection vessels
ARCG	Arctic Response Company Group
AWPPA	Arctic Waters Pollution Prevention Act
Canada COM	Canada Command
CANOSCOM	Canadian Operational Support Command
CANSOFCOM	Canadian Special Operations Forces Command
CASARA	Civil Air Search and Rescue Association
CBSA	Canada Border Services Agency
CCG	Canada Coast Guard
CCGA	Canada Coast Guard Auxiliary
CEFCOM	Canadian Expeditionary Force Command
CF	Canadian Forces
CFATC	CF Arctic Training Centre
CFDS	Canada First Defence Strategy
CFIA	Canadian Food Inspection Agency
CORA	Centre for Operational Research and Analysis
CRPG	Canadian Rangers Patrol Group
DFO	Department of Fisheries and Oceans
DND	Department of National Defence
DRDC	Defence Research & Development Canada
DRDKIM	Director Research and Development Knowledge and Information Management
ECS	Extended Continental Shelf
EEZ	Exclusive Economic Zone
ESF	Emergency Support Function
EU	European Union
FERP	Federal Emergency Response Plan
ICSAR	Interdepartmental Committee on SAR
INAC	Indian and Northern Affairs Canada

IPCC	International Panel on Climate Change
JRCC	Joint Rescue Coordination Centre
JTF(N)	Joint Task Force (North)
MRSC	Marine Rescue Sub-centre
MSEL	Master Scenario Events List
NATO	North Atlantic Treaty Organization
NGO	Non-Government Organization
NM	Nautical Mile
NOAA	National Oceanic and Atmospheric Administration
NR Can	Natural Resources Canada
NSP	National Security Policy; National SAR Program
NSS	National Search and Rescue Secretariat
PHAC	Public Health Agency of Canada
PS	Public Safety Canada
R & D	Research & Development
RCMP	Royal Canadian Mounted Police
SAR	Search and Rescue
SRR	Search and Rescue Region
START	Strategic Arms Reduction Treaty
UN	United Nations
UNCLOS	United Nations Convention on Law of the Sea
UNSC	United Nations Security Council
US	United States
USCG	United States Coast Guard
USSR	Union of Soviet Socialist Republics

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With the change in northern climate over the past decade, current policy and media discussions have focused on the future of the Arctic. DRDC CORA has taken on a number of research projects, including the development of two Arctic security scenarios, a scenario development methodology, and a Capability Inventory Tool (CIT) to identify and characterize legislation and policy on the Arctic, with a view to developing scenarios for future planning and assisting operational commands in their interactions with other operations centres. This report presents one of two scenarios, focused on a defence-centric response scenario. The scenario makes use of the CIT to present an overview of the current situation and presents a projection out to 2015 to set context for a security environment in which there are significant tensions between Canada and Russia over arctic sovereignty. While all efforts have been taken to present a plausible scenario, the research was not based on any intelligence assessments and is not intended to be considered a probable future. Rather, it presents a context to test a range of capabilities required for Canada to be able to meet its strategy and policy objectives.

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