CANADIAN FORCES LEADERSHIP INSTITUTE
CANADIAN DEFENCE ACADEMY

MONOGRAPH SERIES
CFLI Monograph
2011-01
May 2001

# LEADERSHIP IN WHOLE-OF-GOVERNMENT OPERATIONS

## A CASE STUDY OF SECURITY IN THE CANADIAN ARCTIC

**Jenna M. Alexander, MPA**
Research Officer
Canadian Forces Leadership Institute
Canadian Defence Academy

**LCol Dalton Cote, OMM, CD1**
Section Head, Leadership Lessons Learned
Canadian Forces Leadership Institute
Canadian Defence Academy

National Defence Défense nationale

Canada

# Leadership in Whole-of-Government Operations

A Case Study of Security in the Canadian Arctic

Jenna M. Alexander, M.P.A

LCol Dalton Cote, OMM, CD1

**Canadian Forces Leadership Institute**
**Canadian Defence Academy**

**May 2011**

**CFLI Monograph 2011-01**

## Abstract

The issue of security in the Arctic is of increasing concern to the Government of Canada. Melting ice during the summer months has made a number of Arctic waterways traversable resulting in an increase in marine traffic and foreign interest. This increase in traffic has prompted the Canadian Government, along with a number of other Arctic-bordering states, to assess related security threats.

As stated in the 2008 *Canada First Defence Strategy*, the Government of Canada is committed to greater Canadian Forces involvement in the Arctic. The Canadian Forces are however not the only (nor the primary) federal presence in Canada's North. Canadian Arctic security is a complex problem: operationally, due to austere Arctic weather conditions, remoteness and limited (if any) infrastructure; as well as organizationally, as it requires integration of security partners across federal departments and agencies. Although some federal departments and agencies have more experience than others on the Arctic front, all have diverse capabilities and resources that combined can tackle a wide spectrum of security threats. This is understood as the "whole-of-government" approach.

This report seeks to uncover how Canadian Forces leadership can benefit Canada's whole-of-government approach to Arctic security through assessment of joint interagency operations and exercises. Chapter 1 provides a brief introduction to the origins and meaning behind the concept of "whole-of-government". Chapters 2 and 3 present the case of the Canadian Arctic from the evolution of security concerns to international claims for sovereignty over coastal and marine waterways and the key federal security partners whose responsibilities coincide. Chapter 4 provides examples of the whole-of-government at work, from exercises and operations to working groups. Finally, Chapter 5 presents five Key Considerations for Effective Leadership in Whole-of-Government Operations based on a comparative study of interagency Lessons Learned and After Action Reports on the cases provided in Chapter 4.

In short, interdepartmental/interagency integration can prove as challenging as physical environmental challenges. As more and more government departments and agencies find themselves working together toward a shared objective the requirement for further development of interagency integration within the wider leadership context is necessary.

## Table of Contents



## List of Figures

Arctic security[i] is a complex problem: it is an area of responsibility (AOR) for multiple federal departments, both civilian and military, whose combined mandate is the assurance of safety and security. These departments are armed with capabilities from emergency response such as search and rescue to the use of force to defend Canada against incursions.[1]

The challenge of ensuring success, including security, in the Arctic "depends on maintaining a close relationship between departments, avoiding duplication, making the best use of all available national assets in Canada's vast northern region, and building on existing strengths."[2] It requires a whole-of-government approach at the national level.

**Whole-of-Government**

Research on the whole-of-government approach is wide ranging however a succinct definition from Australia provides good context: "Whole-of-Government denotes public service agencies working across portfolio boundaries to achieve a shared goal and an integrated government response to particular issues. Approaches can be formal or informal. They can focus on policy development, program management and service delivery."[3]

Canada's effort in whole-of-government finds its roots in the Westminster parliamentary tradition with its system of vertical Ministerial accountability. In 2002, the Auditor General of Canada examined some of the difficulties of government partnerships inherent in such a system and made recommendations to improve partnering relationships.[4] The Treasury Board Secretariat of Canada agreed with these recommendations and responded in their annual report with government departments and agencies grouped along horizontal areas or clusters in order to allow them to work together to achieve common goals.[5] Treasury Board continued to examine this issue and produce various iterations for a Whole-of-Government Framework. The purpose of the framework being to align departmental contributions, strategic outcomes and program activities to overarching Government of Canada "Outcome Area" and Government Affairs.[6]

Concurrently, Canada's evolving foreign and security policy resulted in the Government looking at an integrated approach to deal with a number of different threats in the new security

[i] Security threats in the Arctic can include major air and sea disasters, illegal immigration/smuggling and/or environmental damage. See Chapter 2 for further discussion of risks.

environment.[7] In 2005, the term 3D – Defence, Diplomacy and Development – was introduced to acknowledge the requirement for greater coordination through overarching policy.[8] The Defence section of this report highlighted that the military's "ability to carry out three-block war operations will be critical to the success of Canada's efforts".[9] The three block war concept articulated that security forces would be in peace-making, peace-keeping and humanitarian missions all in close proximity to each (the three blocks) and thus the Forces required the ability to transition back and forth between the three. However, the three block war concept described roles of the military, not other government departments, including the other institutional leads in the 3D approach: Foreign Affairs and International Trade Canada (DFAIT) and the Canadian International Development Agency (CIDA). Therefore, the 3D approach became more common in government policy discussions, until the change of government, in 2006, when the lexicon changed from 3D to "Whole-of-Government".[10]

The realities of international crises are that they are often complex problems with a large number of diverse participants. The Canadian Government's involvement in Afghanistan is a prime example. There are a number of key participants and partners involved, across multiple levels of domestic governments, agencies, organizations and including international organizations both governmental and non-governmental. The diversity of organizations and agencies, each with their own culture, mindsets, biases and capabilities poses challenges to any successful collaboration. A comprehensive approach will be required to achieve effective coordination and cooperation amongst disparate groups, with at times conflicting agendas and objectives.[11] The complexity added by the inclusion of many key stakeholders outside of the Government departments has led many writers to move from a whole-of-government approach to writing about a Comprehensive Approach.[12]

Regardless of which "Approach" is articulated, the objective remains that the many disparate entities involved must work coherently as a type of virtual organization. The field of Disaster and Emergency Management is robust with lessons learned about worldwide complex emergencies and the partnership arrangements required to deal with the challenges.[13] Coherent policy, accessible funding, and effective collaboration, coordination and communication are required. However beyond the physical and legislative structures that are necessary, Russell, through a detailed literature review, highlights a number of factors that are key to effective intergovernmental cooperation and coordination. These include: building interpersonal

relationships; developing trust through direct and informal contacts, networks, and common activities; developing a common understanding of each agency's role, mandate, responsibilities and regular training and exercises as ways to develop and maintain common understanding.[14]

The challenge of exercising executive or strategic leadership in whole-of-government operations is to move beyond activities that are familiar within an organization and to think about the requirements of providing leadership in the "whole organization". Some key activities[15] include:

- Being able to influence strategic decisions
- Creating and communicating a vision of the future
- Developing key competencies
- Developing organizational structures, processes and controls
- Managing multiple constituencies
- Helping select and develop the next generation of leaders
- Sustaining an effective organizational culture
- Infusing an ethical value system into the organizational culture

In a whole-of-government approach the requirement will be for leaders who can move beyond direct leadership and display the intellectual agility and cultural intelligence to be able be able to lead through activities that support focus, convergence and consensus.[16] It is important for all participants, but specifically military commanders and leaders to accept that leadership in a whole-of-government approach relies on relationship building over role defining, loose coupling over standardization, learning over knowing, self-synchronization over command and control and systems thinking over planning based on estimates.

This report will take a detailed look at the Canadian Arctic, using it as a framework to discuss the whole-of-government approach, and inherent leadership observations, as it relates to Canadian Arctic security operations.

## II. The Case of the Canadian Arctic

Canada boasts a long history as an Arctic nation. The exploration of the great Canadian North began in 1880 when the High Arctic islands were transferred to Canada by Great Britain.[17] As Canada expanded its borders westward and northward an increasing concern for territorial security and sovereignty of the area led to the creation of the Royal Canadian Mounted Police (RCMP) in 1873.[18] Not until the early nineteenth century did the Canadian military become involved in the North – first through the Yukon Field Force and later in 1923 with the Royal Canadian Corps of Signals in the Northwest Territories and the Yukon. [19]


**Figure 2.1 Canada in the Circumpolar World**

The Cold War saw the first surge of operations in the Arctic since the Second World War, cited as one of the Cold War's main areas of interest due to the prospect of an attack from Soviet bomber and strategic missile forces.[20] The Distant Early Warning System (DEW) Line was established along with the North American Air Defence Command (NORAD) in efforts to defend against an air attack.[21] However, with the end of the Cold War in 1989, and the prediction of peace dividends in the 1990s, northern security was largely abandoned; not until the new millennium did the Arctic remerge as a security concern.[22]

### Why the Arctic? Why Now?

Arctic Research Specialist Dr. Rob Huebert points to three reasons for this 'renaissance' in arctic security: climate change, a demand for natural resources, and a series of international incidents including the attacks of 9/11– all of which forced Canada (and North America) to reassess its vulnerability in the North.[23]

### *Climate Change*

According to the 2004 Arctic Climate Impact Assessment the average temperature in the Arctic is warming, resulting in the melting of sea ice. It is estimated that close to 20% of the Polar Ice Cap melted between 1979 and 2003 (see Figure 1.2).[24] Since the 1970s the annual average sea-ice extent has decreased by 8%, or one million square kilometres. In the summer months sea ice[ii] has declined by 15-20%.[25] This recession of both sea and fast ice[iii] has resulted in coastal erosion and an opening up of various waterways.[26]

Climate projections for the future involve further melting of Arctic ice. All model simulation projects employed by Arctic Climate Impact Assessment (ACIA) indicate that the earth will warm more than twice as much in this century as it warmed over the past century due to human activity.[27] In terms of sea ice, the average annual decrease is projected at more than 50% by the end of the century, with some regions showing a near disappearance of summer sea ice.[28] Regardless of the causes of this warming, the implications of increased accessibility to Arctic waterways are becoming more and more evident.

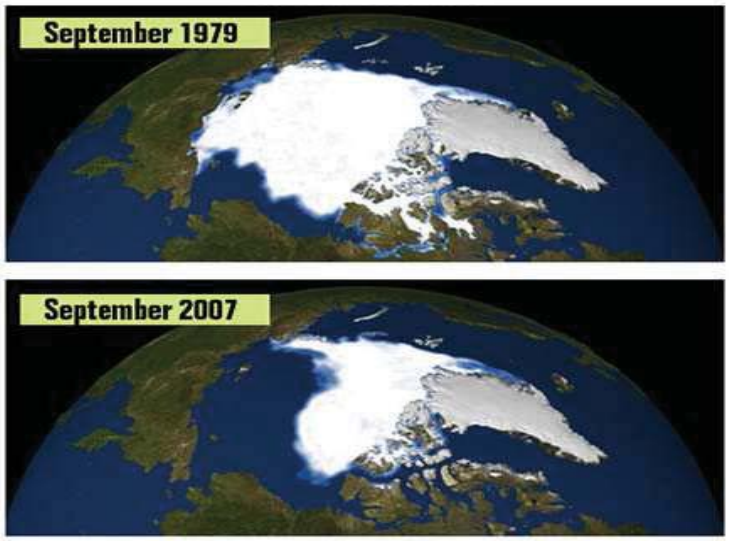


**Figure 2.2 Loss of Arctic Sea Ice 1979-2007**

Melting ice is predicted to increase commercial shipping in the Arctic, posing a threat to states situated in the region in the case of a fuel spill. The Arctic Marine Shipping Assessment Report (AMSR)[iv] found that in 2004 approximately 6,000[v] individual vessels transited the Arctic, the

---

[ii] ***Sea ice*** *is formed as seawater freezes. Because sea ice is less dense than seawater, it floats on top of the ocean. As sea ice forms, it rejects the majority of its salt to the ocean, making the ice even lighter.*

[iii] ***Fast ice*** *is a sea ice that grows from the coast into the sea, remaining attached to the coast or grounded to a shallow sea floor.*

[iv] *The Arctic Marine Shipping Assessment (AMSA) is a comprehensive study and evaluation of Arctic marine activity today and in the future. The AMSA 2009 Report is designed to educate and inform people about the current state of Arctic marine use and future challenges.*

majority of these vessels being bulk carriers (20%).[29] A rise in marine traffic has implications for Canada from border security to environmental damage.[30]

Although the degree to which international shipping will increase in the Arctic is uncertain due to formidable conditions, regional shipping is in fact increasing in response to greater demand from Northern communities for shipments of goods from the south. Regional shipping companies such as the Inuit-owned Northern Shipping Company are increasing fuel delivery to more remote coastal areas in need – increasing the risk of an oil spill and irreparable environmental damage. Arctic tourism is also increasing. In 1990, only one cruise ship transited the North, but by 1999 fifteen cruise ships were reported, and market research indicates increased supply and demand for private Arctic excursions.[31] Finally, Arctic over flights have increased, with estimates of over 100,000 international flights transiting the Canadian Arctic each year.[32]

This is problematic from a national safety and security standpoint as the risk of major air and sea disasters, illegal immigration/smuggling and/or environmental damage rises with increased activity. If any accidents took place in Canadian waters a number of Canadian government departments/agencies would be required to respond. Even if outside Canadian jurisdiction, Canada may act as the first responder or major supporter of rescue/interdiction operations.

***The Race for Resources***

Receding ice patterns have also increased the risk that a resource competition will ignite between states bordering the Arctic Ocean. Current international legal disagreements (assessed in Chapter 2) indicates a growing concern for who will have jurisdiction over the untapped oil, gas and minerals in the region. The Arctic is proposed to contain one quarter of the world's undiscovered energy resources, but has remained untapped due to the hostile and unpredictable climate and remote geography. [33] With ice increasingly melting in the summer months there is speculation that a race for jurisdiction over these resources will quickly ensue as global energy prices continue to rise.[34]

---

[v] *The availability of data and reporting on Arctic marine activity varied greatly between Arctic states; several could not provide comprehensive data for 2004. As a result, the AMSA database likely underestimates the levels of activity.*

### *Terrorism North of 60*

Finally, the terrorist attacks that took place in September of 2001 ushered in an era of uncertainty as non-traditional threats to state security emerged.[35] The protection of North America became the number one goal of foreign and defence policies, and had implications for all government departments.[36] As borders were secured in the south, increasing concern emerged over the northern territory that was largely unmonitored; shortfalls such as the lack of security screening in Canada's northern airports were deemed vulnerable areas in which terrorists could enter into North America.[37]

### Disputed Canadian Arctic Territory

Sovereignty is a central pillar of international law, defined as the "supreme legitimate authority within a territory".[38] However, sovereignty as it applies to the Arctic has proven to be a contentious issue among states bordering Arctic waters. Through policy statements and multi-lateral agreements, the Government of Canada has framed Arctic sovereignty in terms of state responsibility; In other words, Canada must work to establish and maintain a clear presence in the Arctic in order to effectively demonstrate sovereignty[39] As iterated by former Minister of National Defence Bill Graham, "Sovereignty is a question of exercising, actively, your responsibilities in an area".[40]

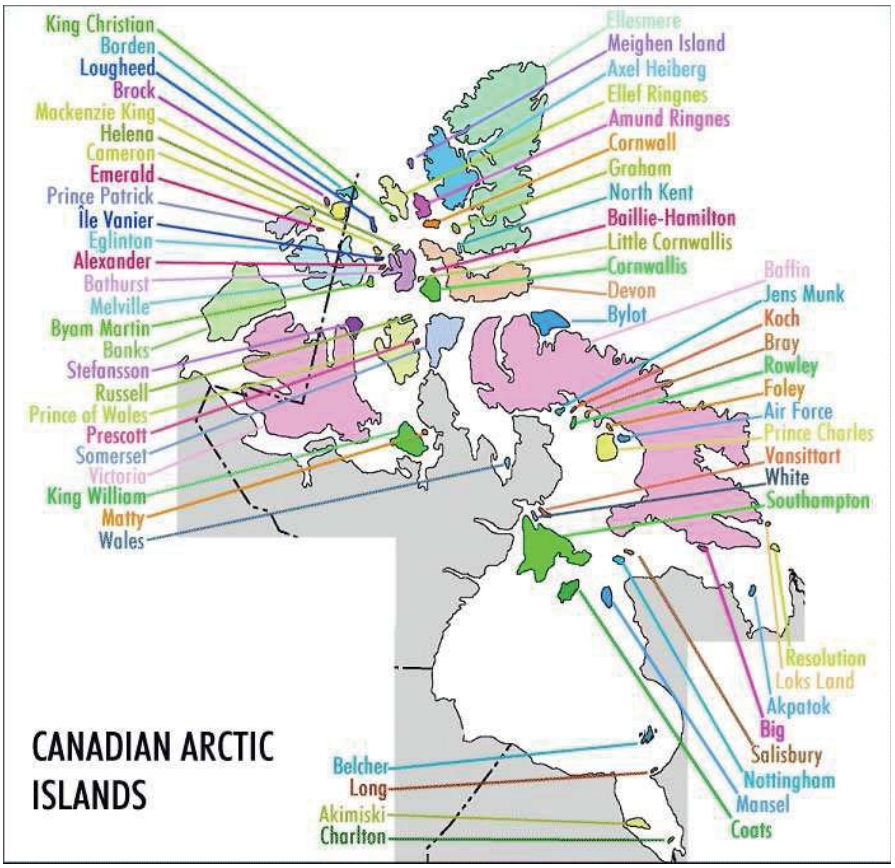


**Figure 2.3 Canadian Arctic Archipelago**

The legal framework that encapsulates the Arctic is complex and Canada is not alone in staking claim to some portions of its waterways. Arctic coastal states including Canada, Russia, Norway, Denmark, Iceland and the United States have all made jurisdictional claims over Arctic territory.[41] Of interest to Canada is the waterways within the Canadian Arctic Archipelago (see Figure 2.1).[42]

Integral to the solution of this debate is the legal framework governing the oceans – the Law of the Sea. The Law of the Sea is an international agreement entrenched by the 1982 *UN Convention on the Law of the Sea (UNCLOS),* which governs the use of the high seas.[43] With 150 member states, this Convention recognizes an Exclusive Economic Zone (EEZ) of up to 200 nautical miles seaward from the baseline of a state.[44] Claims can be made beyond this distance if the continental shelf can be proven to extend beyond the baseline. Under UNCLOS, evidence of an extended shelf must be submitted to the Commission on the Limits of the Continental Shelf ten years after a state ratifies the Convention.[45]

Canada signed UNCLOS in 2003[46] and must submit its findings to the Commission by 2013. With this date fast approaching, the Government of Canada has ramped up their funding for mapping research in order to establish the length of its continental shelf in the Arctic;[47] in 2007 the Canadian Government announced a cumulative total of $69 million over ten years to meet the 2013 deadline.[48] Norway and Russia are the only countries to submit claims as of yet – Norway in 2006 and Russia in 2001. However, due to "insufficient information", Russia has been asked to resubmit evidence and Norway's submission has not been ruled on.[49]

Two of Canada's maritime claims are still heavily contested, the Northwest Passage and the Beaufort Sea. The Northwest Passage (NWP) compromises the arctic waters between the Davis Strait and Baffin Bay in the east and the Bering Strait in the west. Five routes of passage are noted in this region – only two of which can be transited.[50] As ice continues to melt these routes are expected to become accessible, creating opportunities for newer and perhaps shorter shipping routes.[51] In fact, successful transit through the NWP is estimated to be 9,000 kilometres shorter than passing through the Panama Canal and 17,000 kilometres shorter than transiting the Cape Horne route.[52] The Arctic's unpredictable

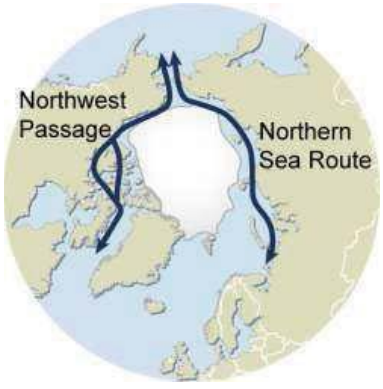

**Figure 2.4 Northwest Passage**

climate paired with danger of floating ice in the region may however not be supportive of travel during the summer months.[53]

Under international law, the high seas can be defined in three ways: internal, international or territorial. The differences between these legal definitions have implications on a state's control of the activities that take place in the waters that surround them.

***Internal Waters***

Canada asserts that the Northwest Passage falls under its jurisdiction, the Passage argued to constitute "internal waters".[54] This assertion is made based on historic title and straight baselines. Historically, Canada argues it has maintained a clear presence in its Arctic islands and the waters that surround them, which includes the NWP.[55] Conditions must be met in order for a historic title to be legitimate, including demonstrated, clear and exclusive exercise of state jurisdiction in the area over a long period of time that has remained unchallenged by foreign states.[56] As noted above, Canada's assertion of jurisdiction is challenged, thus its historical grounds for staking a claim of sovereignty are weak.[57] States have the exclusive right to monitor, regulate and restrict any activity taking place within their internal waters. For example, Canada currently employs Northern Canada Vessel Traffic Services (NORDREG) in the Northwest Passage requiring all ships passing through to notify Canada of their presence by registering with the Canadian Coast Guard.[vi]

***International Straight***

Freedom of navigation has been a key tenet of US policy concerning the governance of the high seas.[58] The United States claims that the NWP is an "international strait" in which all states have unrestricted passage. Under Article 37, the UN Convention on the Law of the Sea defines an international strait as that "used for international navigation between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone."[59] The exception to this rule of unrestricted passage is if the strait is formed by an island of a State bordering the strait and its mainland, or if passage on the seaward side of the island exists.[60]

---

[vi] *The Arctic Canada Traffic System (NORDREG) monitors and supports vessel traffic north of 60° latitude. It is the responsibility of ship-owner/master who plans to operate outside of the Zone/Date System to submit an Ice Regime Routing Message and wait for NORDREG to acknowledge the routing message. A report to NORDREG will be made a minimum of 24 hours before entering the zone/seaward boundary. NORDREG checks that the requests are reasonable and if not, it will request additional information or clarification.*

Bordering states to the strait maintain Exclusive Economic Zones (EEZ) whereby that state has the right to exercise "exclusive control and sovereign rights over all of the living and non-living resources".[61] Waters deemed international are only governed by internationally accepted standards such as environmental protection and navigation practices.[62]

***Territorial Waters***

Finally, the NWP has been proposed to constitute "territorial waters" subject to a right of innocent passage for foreign states.[63] Much of the Northwest Passage has been deemed territorial seas and ships transiting this area must register with NORDREG to ensure Canada is aware of their presence. Under the Arctic Waters Pollution Prevention Act, Canada can enforce its policies on ships in its jurisdiction.[64] The Beaufort Sea is a similarly contested area, located between the Canadian Yukon and the U.S. state of Alaska. Canada considers this area to be an extension of the land boundary between the US and Canada, however the dividing line has yet to be agreed upon.[65]

How these waters are defined by law translates into the level of sovereignty a state like Canada can claim, therefore it is important to understand the multiple legal debates that are currently taking place with respect to Arctic waters; this definition of jurisdiction bears heavily on Canada's control over the security of its borders, its environment, and its northern peoples.[66] The impact of climate change will undoubtedly intensify these sovereignty debates as an increasing number of passages become open to transit.

## III. Arctic Security Partners and Areas of Responsibility

Arctic security is a complex problem[vii]: it is an area of responsibility (AOR) for multiple federal departments, both civilian and military, whose combined mandate is the assurance of safety and security. These departments are equipped with capabilities in emergency response from search and rescue and disaster relief to the defence of Canadian sovereignty claims.[67]

Multiple federal departments cooperate in the realm of Arctic safety and security including, but not limited to: the Royal Canadian Mounted Police (RCMP), Public Safety Canada (PS), the Canadian Coast Guard (CCG) under Fisheries and Oceans Canada, the Canadian Forces (CF) and the Department of National Defence (DND), Transport Canada and the Canada Border Services Agency (CBSA). Their subsequent areas of responsibility (AOR) are as follows:

| Federal Department/Agency | Area of Responsibility |
|---|---|
| Canadian Forces | Air surveillance; Maritime search and rescue; Support to Other Government Departments (OGDs); Response to hostile activity |
| Canadian Coast Guard | Marine surveillance (marine search and rescue) |
| RCMP | National security and organized crime |
| Canada Border Services Agency | Border security: illegal immigration and smuggling |
| Transport Canada | Marine & aviation safety and security |
| Public Safety Canada | Coordination across all federal departments and agencies responsible for national security and safety |

### THE CANADIAN FORCES

*Section 275* of the National Defence Act outlines the roles and responsibilities of the Canadian Forces in domestic affairs.

> **275.** The Canadian Forces, any unit or other element thereof and any officer or non-commissioned member, with materiel, are liable to be called out for service in aid of the civil power in any case in which a riot or disturbance of the peace, beyond

[vii] Complex systems consist of very large populations of independent, interacting, self-interested agents where global behaviour cannot be explained by any one set of components, and there is no guaranteed means of top down organization or control of the entire system. For more information on complex systems see CFLI TR 2009-01, pp.14-15.

the powers of the civil authorities to suppress, prevent or deal with and requiring that service, occurs or is, in the opinion of an attorney general, considered as likely to occur.

In terms of the Arctic, the CF can potentially be called upon to work with the Canadian Coast Guard in marine surveillance, the RCMP in coastal and border monitoring, Canada Border Services Agency in border security and Transport Canada in marine safety. When required, coordination across all federal departments and agencies responsible for national security and safety is the responsibility of Public Safety Canada.

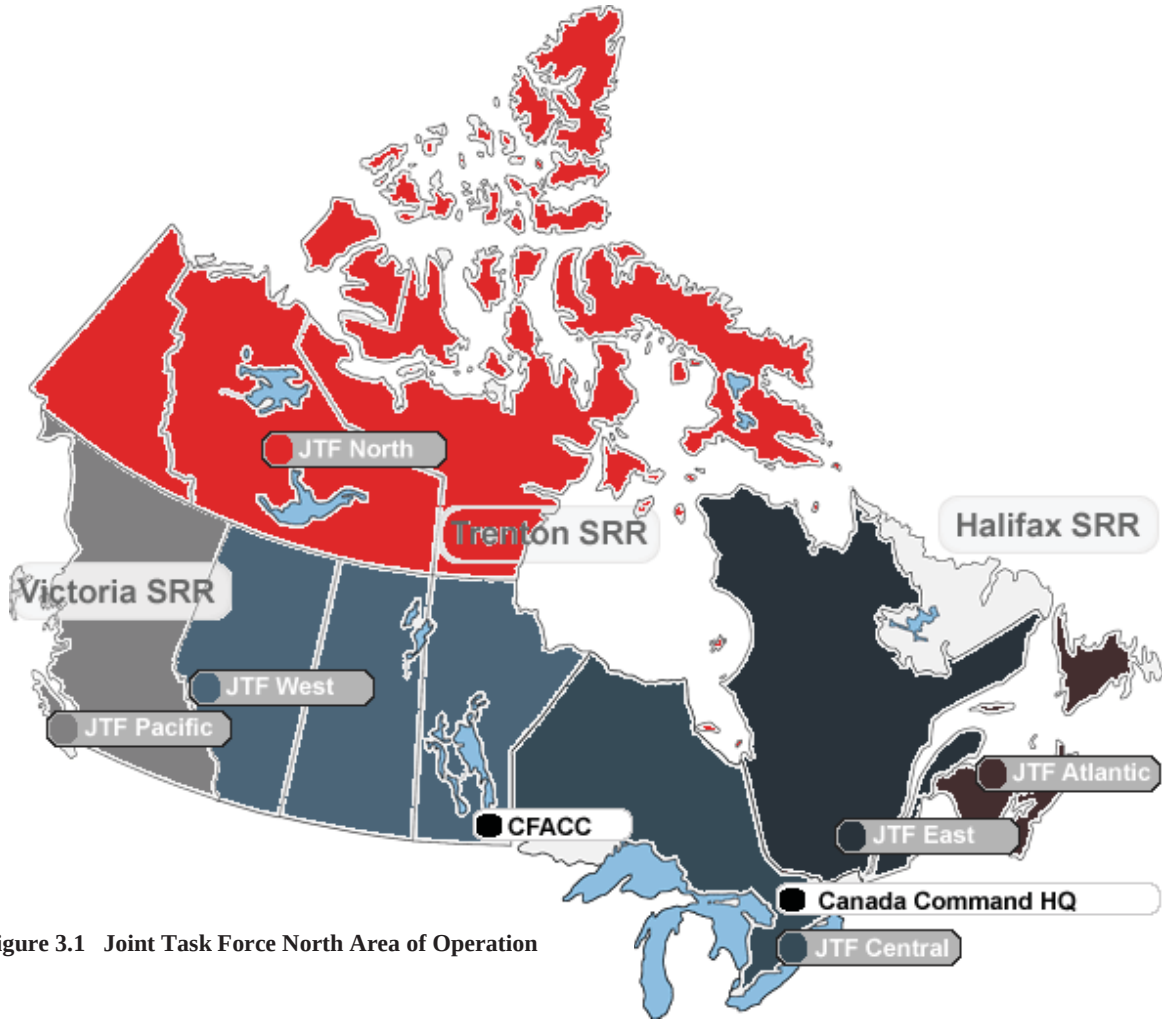


**Figure 3.1 Joint Task Force North Area of Operation**

Canada Command was established in 2006 to oversee the command and control of the defence of Canada and North America.[68] Six sub-commands, or regional joint[viii] task forces, operate within

[viii] *'Joint' is defined by NATO in their Allied Joint Publication 01 as: joint: "activities, operations, organisations, etc in which elements of more than one Service participate." 'Combined' on the other hand is defined as "activities,*

Canada Command. Joint Task Force North (JTFN) serves as the regional force responsible for CF operations in the North – an area constituting 40% of Canada's land mass, or 75% of its coastal regions.[69]

The mandate of JTFN is to "exercise Canadian sovereignty north of the 60th parallel, to coordinate and support CF activities in the North, and to provide liaison with the territorial governments and peoples of the three northern territories".[70] Capabilities employed by the CF in Canada's North includes the conduct of aerial surveillance, sovereignty patrols, assisting with SAR, and providing support to other government departments in need of assistance.[71] Three annual exercises are conducted by the Canadian Forces under JTFN: Operation Nunalivut in the High Arctic, Operation Nunakput in the western Arctic, and Operation Nanook in the eastern Arctic. These exercises are focused on the advancement of Canadian capabilities in the Arctic; improving inter-agency coordination in responding to crises and emergencies.[72] In addition, the Commander of JTFN co-chairs the Arctic Security Working Group with the Public Safety Canada Arctic Regional Director.[73] Finally, JTFN employs the Canadian Rangers, a sub-component of the Canadian Forces Reserve whose mission is "to provide lightly equipped, self sufficient, mobile forces in support of the CF's sovereignty and domestic operation tasks in Canada".[74]

Military infrastructure in the Canadian Arctic consists of: (a) *Station Alert*: established in the late 1950s, Station Alert is the northern most permanently inhabited settlement in the world. Located on Ellesmere Island, Station Alert collects signals intelligence and forwards this information to the CF command centre in Yellowknife;[75] and (b) the *Canadian Forces Arctic Training Centre* (CFATC): set to open in 2013 in Resolute Bay, Nunavut to provide a year-round location for the military to conduct Arctic training and routine operations.[76] CFATC also serves as a command post for emergency operations and houses pre-positioned military equipment and vehicles to increase the CF's support capabilities to regional military or civilian emergency operations.[77]

Two goals articulated by the Canadian government are achieved by the Canadian Forces in the North: exercising sovereignty through an increased Canadian (air/land/sea) presence in the

---

*operations, organisations, etc in which the forces or agencies of more than one nation participate." For more information on the use of these terms in Canada and internationally see 'Boomer, 1998'.*

Arctic, and increasing the effectiveness of Search and Rescue (SAR) in northern and Arctic territory.

### *Air Support*

The Air Force conducts and participates in a number of operations annually. Operation BOXTOP is a Canada Command sustainment operation conducted twice a year (spring and fall) to provide CF Station Alert on Ellesmere Island with fuel and dry goods.[78] The Air Force also participates in Operation NUNALIVUT on an annual basis – one of three exercise operations conducted by the Canadian Forces.[79]

### *Maritime Patrols*

The Canadian Air Force works in cooperation with the Canadian Navy to conduct maritime surveillance – this requires the Air Force to employ its maritime patrol aircraft such as the CP-140 *Aurora* to monitor Canadian territorial waters and the 200-mile exclusive economic zone.[80] Most notably, the Auroras can conduct underwater surveillance and have an endurance of 17 hours, or 10,000 kilometres.[81] In addition, the Auroras and CH-124 Sea King helicopters conduct regular surveillance operations on the East and West coasts to monitor marine activity for pollution and illegal entry; this patrol mechanism is limited in the North as severe weather conditions prevent CF aircraft from conducting routine surveillance.[82] Along with the Hercules, Twin Otter, and Griffon helicopters, the CC-177 Globemaster III also provides a vital resupply service for northern military stations such as Alert and the Northern Warning System[ix] radar sites.[83]

### *Search and Rescue*

Of the responsibilities mentioned, SAR is one of the most critical as increased ship access to Arctic waters as well as increased Arctic over flight will amplify the risk of search and rescue incidents.[84] In terms of SAR, Canada Command is responsible for the coordination of the maritime and aeronautical search and rescue (SAR) system in partnership with the Canadian Coast Guard, who leads marine SAR, and the RCMP who leads land response.[85] Three SAR regions are clearly delineated across Canada in Halifax (eastern Canada), Trenton (central Canada) and Victoria (western Canada). Northern SAR coverage is for the most part under

[ix] *The Northern Warning System (NWS) is a NORAD-maintained series of 11 long-range and 36 short-range radars situated on the Arctic coastline of North America that allows NORAD to detect all approaching airborne activity. For more information see 'NORAD at 40 Historical Overview,' published by the Federation of American Scientists.*

Trenton's jurisdiction with its higher headquarters in Winnipeg, Manitoba (see Figure 4.1).[86] Canada Command is also responsible for coordinating a response to a major air disaster in the North.[87]

Calls for SAR go to one of the three Joint Rescue Coordination Centres (JRCCs) located in Victoria, Trenton and Halifax staffed by CF and Coast Guard personnel, or one of two Maritime Rescue Sub-Centres (MRSCs) staffed by Coast Guard personnel. Maritime emergencies are the responsibility of the Coast Guard and the Coast Guard Auxiliary, while aeronautical emergencies fall under the mandate of the Canadian Air Force along with available volunteers from the Canadian Air Search and Rescue Association (CASARA).[88] SAR crews coordinate and conduct searches for people in distress, administer emergency medical aid at crash sites and transport injured people to hospital.[89] More than 750 CF personnel work in SAR, from ground and air crew to SAR technicians (SAR Techs).[90] Ground crew technicians maintain SAR aircraft to ensure they are capable of operating in extreme weather conditions while air crew fly the aircraft to search areas, conduct searches and drop response crew.[91] Canada currently employs 130 SAR Techs, who are highly trained medical technicians that provide on-scene medical attention on land and sea in extreme conditions.[92] SAR Techs are specially trained in Arctic operations and are continuously training to improve their response capabilities in the North.[93]

The Canadian Air Force operates four types of aircraft for SAR response: the Hercules, a long range cargo aircraft capable of transporting supplies and dropping SAR crews on the scene; the Buffalo, a flexible aircraft capable of landing and taking off on short landing surfaces; the Cormorant, a long-range helicopter capable of conducting extended searches and transporting large cargo; and the Griffon, a helicopter equipped with heat-seeking infrared radar, ideal for SAR and capable of providing air medical support and casualty evacuation.[94] Sea King helicopters and Aurora maritime patrol aircraft are also called on to provide support.[95] CF helicopters are stationed in Trenton, Ontario which is the headquarters for the air support division of Canada Command, or Gander, Newfoundland. Finally, SAR technicians are stationed on the East and West coasts readily available to conduct SAR operations.[96]

The SAR-capable aircraft mentioned above can operate in all temperatures, including extreme cold, but are challenged by the limited air infrastructure in the North; this means air drops of personnel and cargo is usually performed where aircraft cannot safely land.[97] Aircraft specialized

in operating in Arctic climates, such as the CC-138 Twin Otter stationed in Yellowknife at 440 (Transport) Squadron, have the ability to take off and land on sea ice as it is light-weight and ski-equipped; the Twin Otter is the essential re-supply lifeline for Arctic patrols conducted by the CF.[98]

The Canadian Air Force conducts Northern Patrols using Auroras, a fleet of eighteen fixed-wing maritime patrol aircraft – the Air Force's only long-range patrol aircraft stationed in Comox, B.C. and Greenwood, Nova Scotia.[99] Under the *CFDS* 2008, ten of the eighteen CP-140 *Auroras* will be modernized to extend their life to 2020, at which time a new fleet of patrol aircraft will be available.[100] The new fleet will include radar, satellite and unmanned aerial vehicles (UAVs).[101] UAVs have proven an invaluable and cost-effective choice to the manned alternative.[102] Recent operations by Canada in Afghanistan have relied on the use of UAVs where surveillance is required in unfriendly surroundings.[103]

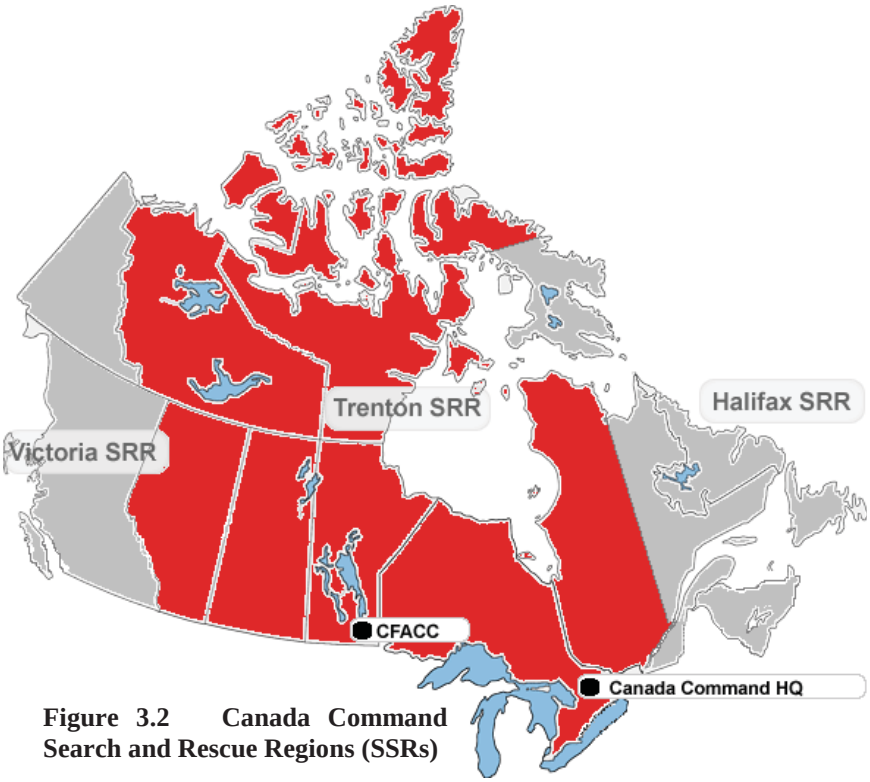


**Figure 3.2 Canada Command Search and Rescue Regions (SSRs)**

The Canadian Forces Experimentation Centre located outside of Ottawa is currently engaged in a study of UAVs, and has tested several versions of this technology in various environments in Canada, including the Arctic and on the Atlantic Coast.[104] The estimated cost of an UAV platform is estimated around $250 million, depending on the type and number of vehicles acquired.[105]

### *Ground Surveillance*

The Canadian Rangers were established in 1947 as non-commission reserve members of the CF.[106] The Canadian Rangers act as the 'boots on the ground' for the Canadian military in the

North, totalling 1,600 at present.[107] Under the command of JTFN, their responsibilities include: the conduct of coastal and inland water surveillance and sovereignty patrols; reporting of unusual sightings or activities; the collection of data of significance to the CF; the protection of the North Warning System; and the provision of assistance with SAR missions.[108] The "eyes and ears" of the Canadian Forces in the North, the Rangers live in Canada's Northern and Arctic communities providing a constant Canadian military presence, in addition to providing the Canadian Forces with essential information and training on the Northern operational environment, (i.e. survival skills, weather patterning, etc).[109]

It is argued that the Rangers are currently ill-equipped to fulfill their role of monitoring Canada's northern and Arctic territories. In response to this capability gap the government proposed the *Ranger Modernization Project,* aimed at improving Ranger capabilities to conduct Arctic surveillance and public safety operations.[110] Improvements are proposed to include an overall increase in Ranger personnel across Canada (by approximately 900 members) and the provision of more modern equipment.[111] Whether this solves the problem has yet to be seen and the question of whether or not the Rangers should constitute a regular full-time force rather than a part-time volunteer reserve force has been surfacing.[112]

***Marine Surveillance***

The Canadian Navy exists to protect Canadians from threats to their security from the sea – including Arctic waterways.[113] As articulated in the Navy's most recent strategic document, LEADMARK: *The Navy's Strategy for 2020,* the primary role of the Navy in the North is a constabulary one consisting of exercising Canadian sovereignty. This role involves: the conduct of sovereignty patrols; aid to the civil power; support of other government departments (OGDs); search and rescue; disaster relief; and oceans management.[114]

In addition, a number of diplomatic and military roles may also be required in the North, such as: support to the scientific community; protection of natural resources and the environment; maritime interdiction operations (MIO) and sea denial; civil-military cooperation (CIMIC) operations; transit passage/escort[*]; fishery and sovereignty patrols; law enforcement (countering

[*] *In cases where escort is required in ice-infested waters a Navy vessel must be escorted by a Canadian Coast Guard vessel as Navy vessels do not possess icebreaking capabilities.*

criminal activity and organized crime, interdicting illegal migrants and preventing the smuggling and transport of drugs and weapons); and counter-terrorism activities.[115]

There is no doubt that the Canadian Navy has predominantly conducted 'blue water'[x] operations, focusing its efforts on Canada's East and West Coast as well as internationally.[116] The Arctic Ocean on the other hand is an environment the Navy has little experience in. In fact, due to the great distance between southern and northern ports, Arctic/Northern operations are considered to be expeditionary in nature. For example, the distance from Halifax, Nova Scotia to Alert, Nunavut is 4,500 km.[117] Although an expeditionary force is defined by the conduct of operations in a foreign country, in the same sense an expeditionary force is able to maintain a self-sufficient in-theatre support capability.[118] The diverse and hostile environment in the Canadian North coupled with the lack of marine infrastructure and support facilities require the Canadian Navy to operate as self-sufficiently in the North as they do when deployed abroad.[119] Additionally, the Arctic is a unique operational area requiring capabilities that can adapt to an isolated and unpredictable operational environment.

A 2005 Report from Defence Research and Development Canada (DRDC) on Arctic maritime security and defence challenges indicated training of Navy personnel in Northern/Arctic operations is essential to maintaining a sustainable and deployable expeditionary force in the North.[120] Operational and technical limitations must be evaluated and understood by those tasked with operating in this hostile environment, and this may involve the augmentation of naval platforms to meet Arctic conditions.[121] However, preparing to operate in a new environment does not come without costs. In fact, the report estimated that operating in the North could be three to five times higher than the same operations conducted elsewhere due to lack of infrastructure to support marine operations.[122]

The Canadian Navy currently has limited capability to conduct Northern operations.[123] At present the Navy's surface ships are unable to travel in greater ice thickness than thin first year ice (30-50 cm thick) while others, such as the Polar Class 3 Iroquois and Halifax Class vessels, can only operate in ice that is 10 cm thick. These vessels are restricted to operations in the navigable season (early June to mid-September) when ice is at its minimum extent.[124] Class 3

[x] 'Blue water' operations refer to missions or exercises which are expeditionary (outside of Canada)

vessels are permitted to operate in the high Arctic, western Arctic (including parts of the Beaufort Sea) and parts of the Canadian Arctic Archipelago.[125]

Recently proposed Arctic/Offshore Patrol Ships (AOPS) are Polar Class 5 vessels and will be able to operate in up to 70 cm of ice.[126] The AOPS will not be combat capable as they are only armed with 25-mm canons, however they will be equipped with landing pads for Cyclone helicopters, will have a range of 6,000 nautical miles, and be able to sustain operations for up to four months.[127] The AOPS are proposed to replace the MCDVs which cannot effectively operate on the open ocean due to limited speed, limited capacity to support boarding operations and inability to support a helicopter.[128] The primary tasks of the AOPS will be to conduct sea-borne surveillance operations in Canada's EEZs and provide situational awareness to all government departments and agencies.[129] Originally proposed to be delivered in 2013, the plans for these ships are still in development – the earliest model is expected to be released in 2015 and the total number is now set at six rather than eight as previously proposed.[130]

The Victoria-class submarine is not capable of conducting underwater Arctic operations however, as it is diesel-powered vice nuclear.[131] These submarines are able to provide a significant Canadian presence in ice-free areas of the Canadian Arctic such as chokepoints in the Northwest Passage.[132] In terms of surveillance, their submarine sensors operate in coordination with fixed or mobile bottom sensors on the CP-140 Auroras as well as Canadian patrol frigates such as the Halifax-class Multi-role Patrol Frigate.[133]

Similar to an air traffic control systems a 'water space management' or WSM is a NATO-run submarine patrol system that reports on foreign submarines operating in international waters.[134] This system is for safety purposes only; submarines report to regional submarine operating authorities (SUBOPAUTHS) using a Notice of Intention (NOI), providing their coordinates, depth and time period in which they will be operating subsurface.[135] Canada can establish a mandatory submarine NOI to increase Canadian awareness of submarine activity in Canadian coastal waters.[136]

## THE CANADIAN COAST GUARD

The Canadian Coast Guard (CCG) has been in operation since 1867.[xi] Although the agency has moved between the Department of Transport and the Department of Fisheries and Oceans (DFO), it was officially designated a Special Operating Agency (SOA) within DFO in 2005. As an SOA, the Coast Guard was given a national role as well as more flexibility and autonomy in the provision of services to other departments such as the Department of National Defence (DND), Environment Canada, the RCMP, DFAIT and Transport Canada.[137] Accountability also changed in 2005, as the Coast Guard moved from reporting to DFO regional offices to reporting to the CCG Commissioner, who reports to the Minister of Fisheries and Oceans through the deputy minister.[138] A distinct reporting system also gives the CCG greater ability to manage its budget.

The primary role of the Canadian Coast Guard includes icebreaking, search and rescue, the placing of navigational aids, and vessel support to other government departments.[139] Seven icebreakers are deployed annually in the summer season, covering all of Canada's marine territory, including the Arctic.[140] Two seasonal Marine Communications and Traffic Services (MCTS) centres, in Iqaluit and in Inuvik, are operated by the Coast Guard to screen vessels before reporting to NORDREG. Vessels are screened using the Automated Information System (AIS) which transponds vessel information from foreign ships.[141] In addition to icebreaking, the following roles fall under the mandate of the Canadian Coast Guard:

- Marine Communications and Traffic Services are provided by the Coast Guard during the navigable season. In serving this function the Coast Guard monitors international marine radio frequencies, broadcasts ice and marine weather information (as supplied by Environment Canada) as well as navigational warnings.[142] Most importantly, from a security standpoint, the Coast Guard screens all ships entering Canadian Arctic waters – can transmit information from the size and tonnage of the vessel to the type of supplies it is carrying.[143] This service in itself is one way in which the Canadian government maintains a presence and awareness of activities taking place in Canadian Arctic waters and beyond.

[xi] *For the purposes of this chapter, the December 2009 Senate Report was referenced as it provides the most up to date and comprehensive information with regard to the Canadian Coast Guard in the Canadian Arctic.*

- Aids to Navigation are maintained by the CCG to ensure all vessels passing through Canadian Arctic waters are safe. Three hundred aids are maintained in the Arctic Ocean in the form of buoys and beacons, which prevent transiting vessels from grounding and collision.[144]
- Search and Rescue involves the use of Coast Guard pleasure craft or local community vessels to provide response in less navigable areas of the Canadian North and Arctic.[145] Although the Minister of National Defence is the lead minister responsible for Canada's National SAR Program, the Coast Guard, under DFO, is responsible for the marine component.[146]
- The CCG is the lead department responsible for pollution or environmental disasters in Northern and Arctic waters.[147]
- Waterways Management includes forecasting water levels during the navigable season to prevent transiting vessels from grounding in areas with lower water levels.[148]

Five regional operation centres divide up Canadian Coast Guard areas of operation, with the National Coordination Center in Ottawa. The Central and Arctic Region centre is stationed in Sarnia, Ontario and is responsible for the waters surrounding a majority of Canada's land mass, covering the entire Canadian Arctic Archipelago north of 60.[149] Upon request the Coast Guard provides logistical and platform support to the Canadian Forces and RCMP.[150] On an annual basis the Coast Guard participates in joint exercises with the Department of National Defence, such as Operation NANOOK, in order to better align emergency response and better equip the CF to operate in the Arctic environment.[151] In addition, the Coast Guard sometimes fulfils a support function for other government departments such as the RCMP by conducting security surveillance and transport to CBSA and RCMP officers on interdiction mission, however this is considered a tertiary responsibility.[152] Finally, the Canadian Coast Guard Auxiliary is a volunteer organization of community members who donate their time and vessels to conduct local SAR services.[153] The CCGA exists in isolated coastal areas where CCG do not regularly monitor or do not have easy access to. Local volunteers assemble a crew that is prepared to respond.[154]

It is also important to note the level of interoperability with the US Coast Guard's Rescue Coordination Centre in Juneau, Alaska.[155] In cases where the Canadian Coast Guard and/or CCGA is unable to respond quickly enough to emergencies in the Western Arctic, the USCG will respond, and vice versa if there is an incident in American waters.[156] Although the Canadian

and American governments do not fully agree on Arctic marine jurisdictional issues, they do share a common concern for Arctic security. The USCG and the CCG also share information and coordinate services.[157] The USCG is an agency of the US Department of Homeland Security (since 2003), and its members are law enforcement personnel. Joint operations and exercises are conducted such as mapping and emergency response.[158] Specifically, the USCG and CCG share responsibility for implementing the bilateral Canada-United States Joint Marine Pollution Contingency Plan (JCP) regarding marine pollution or security threats that require inland or coastal response.[159]

An increase in regional and international shipping is expected in the Arctic; coastal Arctic shipping is the most economical method of delivering goods as roadways are limited and air services are costly.[160] Vessels of all sizes are relied upon to move goods, from shallow draft tugs and barges to tankers and general cargo vessels.[161] An increase in shipping means an increase in the need for CCG support as well as an increased risk of environmental damage and SAR. For example, Northern Transportation Company Limited (NTCL) is the primary carrier in the region (an Inuit-owned shipping company) and carries oil cargo and bulk shipping containers from BC to communities along the Arctic coast.[162]

There is also an increased demand for icebreaking during the navigable season. With the increase of vessel activity in the Arctic, and an expectation of increased shipping in the future as waters become more navigable, the Coast Guard is concerned that it will be unable to meet the expected increased demand in CCG services.[163] When asked during committee proceedings in the Senate in 2009 how the Coast Guard will respond to an increase in marine service demand, Assistant CCG Commissioner of the Central and Arctic Region, Wade Spurrell, stated that the agency is "hard pressed to meet the anticipated demand in all areas at the same time."[164]

NORDREG, the Arctic Canada Traffic System, is managed by the Coast Guard's Marine Communications and Traffic Services. This system is aimed at: enhancing the safety and movement of marine traffic; strengthening Canadian sovereignty over its Arctic waters; and preventing the pollution of Arctic waters by screening and monitoring vessels transiting the Arctic.[165] In terms of Long Range Identification and Tracking (LRIT) Canada currently tracks around 500 vessels a day.[166] The Government of Canada recently announced NORDREG as a mandatory reporting system for large foreign vessels entering Canadian internal waters,

including the Northwest Passage.[167] All large foreign vessels transiting Arctic waters within 200 nautical-miles of Canadian land must now report to NORDREG – complementing the already mandatory reporting system on the East and West coasts.[168] Aligned with the Government of Canada's Northern Strategy and focused on strengthening Canada's Arctic sovereignty, the regulations will require vessels of a certain size[xii] to submit reports in three stages: a pre-arrival information report prior to entering the NORDREG Zone; while navigating within the NORDREG Zone; and upon exiting the NORDREG Zone.[169]

In terms of equipment, the Coast Guard currently deploys icebreakers to the Arctic on an annual basis, from late June to early November; this includes two heavy icebreakers, four medium icebreakers and one light icebreaker.[170] These vessels perform a number of tasks from keeping navigation channels open to delivering supplies to remote settlements that commercial ships are unable to access.[171] These vessels are unable to operate during the winter months (late November to late May) they were originally built to operate in the St. Lawrence Seaway, not the Arctic.[172]

| Icebreaker | Year Built |
|---|---|
| *CCGS Louis S. St-Laurent** | 1969 |
| *CCGS Terry Fox** | 1983 |
| *CCGS Henry Larsen* | 1987 |
| *CCGS Pierre Radisson* | 1978 |
| *CCGS Des Groseilliers* | 1982 |
| *CCGS Amundsen*** | 1979 |

* Heavy icebreaker.
** Dedicated to science in the summer.

**Figure 3.3 List of Heavy and Medium CCG Icebreakers**

Russia is the only country capable of year-round Arctic operation with its fleet of nuclear-powered heavy icebreakers.[173] The Government of Canada's plans to procure a polar icebreaker to be called the CCGS *John G. Diefenbaker* to replace the CCGS *Louis S. St-Laurent,* a 40-year old vessel set to be decommissioned in 2017.[174] $720 million was announced in the 2008 Budget to fund the *Diefenbaker,* though a new fleet of icebreakers is not expected until 2020 at the earliest.[175]

[xii] *Large vessels are currently defined under Canada Shipping Act, 2001 and the AWPPA as vessels weighing over 300 gross tons and/or carrying (or towing a vessel that is carrying) dangerous goods/pollutants.*

The St-Laurent and CCGS Terry Fox are the only icebreakers with Arctic capabilities.[176] The lifespan of an icebreaker is estimated to be around 30 years, however the scheduled decommissioning of the fleet in 2020 will put the current fleet between 40 and 50 years old (see Figure 5.1). In a 2007 Status Report, the Auditor General referred to the fleet's replacement schedule as "outdated and unrealistic".[177]

The Canadian Coast Guard is a major player in the Canadian Arctic whose experience in northern navigation is extensive. At present, the Coast Guard provides a significant platform from which Arctic operations can be conducted in Canada, and the level of operational collaboration that exists between the Coast Guard, RCMP and the Canadian Forces must be taken into account when assessing what resources, personnel and capabilities are available. An enhanced role for the Canadian government in the Arctic invariably means an enhanced role for various government departments - the degree to which this includes the Canadian Coast Guard has yet to be clearly articulated.

## THE ROYAL CANADIAN MOUNTED POLICE (RCMP)

Although the Arctic has, in recent years, been characterized as a 'new frontier' that brings with it new security concerns, it is important to recognize the historical presence of the Royal Canadian Mounted Police (RCMP) in Canada's northern and Arctic territories. Since confederation the RCMP have played a significant role in monitoring and protecting Canada's northern borders – a role that is often not accounted for when assessing Canada's Arctic presence.

The RCMP was established in 1873 to provide a federal presence in the newly acquired western territories. Because Canada had opted out of stationing soldiers on its frontiers, the RCMP was established to fulfill this increasingly necessary role.[178] By 1890 their area of responsibility spread to Canada's northern regions. By 1919 twenty-five detachments had been established, employing over 70 men,[179] and by 1940 the RCMP became the first Canadian presence in the Arctic when its supply vessel, St. Roch, made her historic voyage through the Northwest Passage.[180]

The RCMP operates under the public safety portfolio along with other safety and security agencies such as the Canadian Security Intelligence Service, Canada Boarder Service Agency

and the Department of Public Safety (PS) – PS being the lead department for public safety.[181] The RCMP is responsible for federal law enforcement as per the Canadian Criminal Code across all provinces (except Quebec and Ontario) and territories in Canada; The RCMP's scope of operations is quite expansive and includes organized crime, terrorism, illicit drugs, economic crimes and offences that threaten the integrity of Canada's national borders.[182] In addition, the RCMP is responsible for the conduct of all national security investigations.[183] In terms of Arctic security, the RCMP is the body primarily responsible for policing inland waters and ports and deterring activities that threaten border integrity.[184]

RCMP officers stationed in Canada's northern and Arctic regions possess a wealth of knowledge in northern operations and hold skills beyond those held by their urban counterparts. Due to the variety of police work officers conduct on a daily basis, they have developed specialized skills in marine navigation, wilderness survival and search and rescue. The RCMP has also developed strong communicative relationships with local communities that have enabled them to maintain a solid surveillance network across regions.[185]

As noted by the 2007 RCMP Report on challenges to policing in the Arctic, the concept of sovereignty is strongly related to territorial control:

> "Sovereignty is strongly associated with a responsibility toward the safeguard of citizens, and as such, increased expectations are placed on Canada not only to show a strong presence in the Arctic waters, but also to enact and enforce laws and regulations that govern the country."[186]

Monitoring and a clear presence are essential features of demonstrating Canadian sovereignty in the region. The RCMP meets these criteria in fulfilling its responsibility to detect, report and respond to incidents requiring an official presence.[187] Although increased human activity in the Arctic is unlikely in the next decade due to ever-present obstacles to navigation and limited infrastructure, the RCMP is preparing to respond to issues associated to increased human presence.[188]

***Integrated Border Enforcement & National Ports Strategy***

The RCMP is responsible for patrolling inland waterways and border security. The *Border Integrity Program* was developed in 2001 as an expanded security program in the wake of the 9/11 terrorist attacks in the United States. Territorial *Integrated Border Enforcement Teams* (IBETs) made up of RCMP, CBSA (and U.S. authorities where applicable) conduct annual patrols of waterways, such as the Mackenzie River which poses the highest risk for potential security breaches.[189] Significant barge traffic operates on the Mackenzie River, providing access to new mining and gas developments; if this shipping route was compromised northern communities in Canada would face major economic consequences.[190] In partnership with other government departments, the RCMP developed and procured IBET vessels to conduct security exercises in the Beaufort Sea. Although a permanent IBET unit in the Northwest Territories has yet to be established, an effective IBET is currently operating in the Yukon.[191]

> "We currently have no intelligence gathering capacity (in Nunavut)," says Wheadon, who is banking on a nationally driven business case that could bring as many as 30 new criminal intelligence resources to the RCMP's northern divisions. The extra capacity would also assist the national Marine and Ports program, which requires more ground-level intelligence before it develops a specific Arctic program.[192]

Because the Border Integrity Program does not include Ports of Entry (official customs checkpoints used when crossing the border), a *National Ports Strategy* was established to prevent the entry of cargo and/or persons that could pose a risk to port security.[193] The stated objective of the strategy is: "to take an intelligence-led, multi-disciplinary and integrated approach to prevent, deter and detect any illicit and/or terrorist activity, cargo or people at Canada's major marine ports that may pose a threat to national, US and global safety and security".[194] This strategy is enforced by *National Port Enforcement Teams* (NPETs) who work with all levels of government and law enforcement agencies (including private security companies) to ensure all Canadian ports are secure.[195]

In 2003, under a Transport Canada-submitted Memorandum to Cabinet on Canada's Marine Security, the RCMP received $11.5 million (over five years) to establish a permanent presence

at Canada's three major ports – Halifax, Montreal and Vancouver; In 2007, an additional team was permanently stationed at the port of Hamilton.[196]

Canada currently only operates one Arctic sea port at the Port of Churchill, Manitoba which provides a link to the Arctic Ocean during the navigable season. This Arctic port has received international shipments (inbound) since 2007 from Russia as well as Asia and the Middle East. Although shipping to this port is still limited due to the dangers associated with navigating these waters (especially with the increase in movement of broken ice) Canada is seeing a slight increase in foreign imports in this area – bringing with it border integrity concerns for the RCMP in the area.[197] In response to this increase in border traffic the RCMP and CBSA employ a greater number of personnel at this port during the July to November shipping season.[198]

The RCMP is often the first line of defence across Canada's Arctic and northern regions.[199] The RCMP's main role in the North is to deter activities that threaten border integrity or national security, and to ensure the legitimate use of inland waterways. But necessity often drives the force to act as a first responder for incidents that fall under other federal jurisdictions. [200] Although the RCMP operates in coordination with other federal departments and agencies such as the Department of Defence, Canadian Coast Guard, and Canada Border Service Agency (CBSA), it is the only federal enforcement agency that maintains a presence year-round in 25 Nunavut communities, 23 of the Northwest Territories' 34 communities, and all 7 hamlets on the Arctic coast.[201]

This first response role has proven essential in a number of incidents related to illegal entry into Canada from the north. For example, in 2007 a Romanian man linked to human and drug trafficking was apprehended by the RCMP when illegally entering Cambridge Bay, Nunavut, a small community 100 kilometres north of the Arctic Circle. In the same year, a Norwegian sailboat with individuals linked to organized criminal activity passed customs in Halifax, picked up a suspected affiliate of the Norwegian Hells Angels in Greenland, and re-entered Canadian waters near Gjoa Haven, Nunavut without reporting to customs where they were stopped by RCMP stationed in the area.[202] The RCMP's presence in northern and Arctic communities combined with its strong communication network across remote communities and intimate knowledge of the area provides an unparalleled level of security, providing the most dependable and expedient means of first response to small to medium scale sovereignty breaches.

As of 2009, a full-time Arctic intelligence officer has been dedicated to all northern divisions to identify trends and issues, collect intelligence and information, train members on the collection of criminal intelligence, and continue to develop partnerships with the government departments, the private sector and the communities. Intelligence collected by the RCMP is also shared with the Arctic Security Interdepartmental Working Group whose aim is to enhance security and sovereignty of Canada's North through information sharing and cooperation.[203] The RCMP also provides situational awareness and intelligence regarding national security, organized crime and other criminal activity to the Marine Security Operation Centres (MSOC) in addition to participating in Operation NANOOK, the annual crisis response exercise in the Eastern Arctic.[204] In the Western Arctic, the RCMP is responsible for leading an annual surveillance operation (Operation NUNAKPUT) in partnership with the Canadian Coast Guard. Under NUNAKPUT the RCMP cooperates with the Coast Guard in efforts to improve monitoring activities in the Beaufort Sea and western entrance to the Northwest Passage.[205]

The 2009 *Report of the Senate Standing Committee on Fisheries and Oceans* made a statement regarding the indispensible and unmatched role the RCMP has played in Arctic security:

> "…there is no better source of information and tips than local people, and that strong relationships have developed over the years between the RCMP and people who reside in Canada's northern communities. Because of this presence (the only federal presence in some isolated areas), the RCMP often act as the first responder for incidents of a non-criminal nature that fall under other federal jurisdictions, such as search and rescue."

Not only does the RCMP play a multitude of support roles in the Arctic, but it also provides the grounds for Canada to claim it has maintained a clear presence in the Arctic since Canada's inception.

Three major incidents between 2006 and 2007 involving foreign individuals illegally entering Canada from Arctic regions were responded to by the RCMP in coordination with the Canadian Coast Guard through interdiction. These cases demonstrated that "the RCMP and the coast guard, if they have appropriate equipment and support, are capable of dealing with the non-state threat," otherwise defined by Professor Michael Byers as that which involves non-state actors

such as drug smugglers, illegal immigrants and possible terrorists.[206] In terms of the use of force, the RCMP's *Immediate Action Rapid Deployment (IARD) Program* provides RCMP officers with "active aggressor" training to contain the threat of an active shooter. This training is being further developed to include new tools and aggressors, including terrorist aggressors.[207] In addition, the RCMP also works with an *Incident Management Intervention Model (IMIM)* that provides situational training on the use of force.[208]

The role that the RCMP plays in the Arctic should not be underestimated or ignored in any joint interagency operations. The agency's intimate knowledge of Northern environments, and strong communication with members of Canada's northernmost communities, positions the RCMP as an essential piece of ensuring safety and security in the Canadian North.

## CANADA BORDER SERVICES AGENCY

The Canada Border Services Agency (CBSA) provides integrated border services that support national security priorities and facilitate the free flow of people and goods across the border. Specific responsibilities that relate to Northern border control include detaining individuals who may pose a threat to Canada, identifying and removing people who may pose a threat to Canada, including those involved in terrorism, organized crime, war crimes or crimes against humanity, interdicting illegal goods entering or leaving the country, and administering legislation that governs the admissibility of people into and out of Canada. The CBSA administers over 90 acts, including the Criminal Code and Customs Act.[209]

The CBSA was established in 2003 as an integral part of the Public Safety Portfolio responsible for integrated national security, emergency management, law enforcement, corrections, crime prevention and border management operations.[210] Their strategic outcome (as of 2009-10) is to ensure Canada's population is safe and secure from border-related risks through the provision of integrated border services.[211]

The Border Risk Management Plan was recently developed by the CBSA to optimize the Agency's capacity to identify, interdict and mitigate threats to border security. The Plan aims to: translate threats into program delivery priorities and operational plans; identify program and operational gaps in high-risk areas; support risk-based and prudent resource allocation; and

identify reporting mechanisms for performance to ensure results are incorporated into future threat and risk assessments. Implementation is expected to start in 2010-11 fiscal year.[212]

As noted in the CBSA's 2009-10 Departmental Performance Report, domestic partnerships are pivotal in security cooperation. The RCMP, the agency responsible for border-related enforcement, works intimately with the CBSA. As there are no official marine ports of entry north of 60°, locations for inward and outward clearance must be mutually agreed between the Canada Border Services Agency and the cruise operator.[213] All vessels intent on entering Canadian territory must submit their schedule and itinerary, at which point customs officers are deployed from southern Canada at the agreed marine port of entry.[xiii]

The CBSA is however cognoscente of its limited interaction in the Canadian Arctic,[xiv] due to limited resources and equipment. In light of this, the CBSA is committed to further developing its partnerships with other federal agencies working in the area of Arctic security. A joint or interagency strategy for operations in the North is in the process of being developed.[214]

**TRANSPORT CANADA**

Transport Canada is primarily responsible for ensuring Canada's air, marine, rail and road transportation systems are safe and secure.[215] In terms of safety, the Emergency Preparedness (EP) branch works with other government departments, agencies and the transportation industry to respond to all incidents, emergencies and crises that affect and/or require the support of any part of the national transportation system.[216] The EP branch is responsible for planning (developing and reviewing emergency plans/ provide support for other federal plans), exercises (testing emergency plans), and training (National Emergency Preparedness Course for all Transport employees).[217] In terms of security, Transport responds to any indentified security needs related to the national transportation system.[218]

Specific to the Arctic, Transport Canada focuses on marine protection. Arctic shipping is governed by Transport Canada under the *Arctic Waters Pollution Prevention Act,* the *Canada*

[xiii] Changes are expected with the establishment and operation of the Deepwater Port in Nanisivik, Nunavut, where it is likely that a permanent CBSA office will be established to manage Northern/Arctic customs clearance.
[xiv] As noted in 'Item 3' of the CBSA's Record of Meeting from the Border Commercial Consultative Committee, November 4-5, 2008: http://cbsa-asfc.gc.ca/agency-agence/consult/bccc-ccacf/2008-11-05-eng.html#c3

*Shipping Act 2001,* and the *Marine Transportation Security Act.*[219] Under these acts, ships must meet special Arctic operating requirements such as ice and cold weather resistance.[220] Transport also produced two marine survival guides referenced by a number of federal departments operating in the area.[221] Additionally, Transport Canada work with other Arctic countries on the Arctic Council's Emergency Prevention, Preparedness and Response (EPPR) Working Group, whose goal is to protect the Arctic environment from the threat or impact of activities that may result in the accidental release of pollutants and/or respond to natural disasters in the Arctic.[222]

Transport Canada is also responsible for aviation safety under the National Airports Policy, which includes 11 federal government-owned and operated Arctic airports – nine in the Northwest Territories and two in the Yukon.[223] Civil Aviation Contingency Operations (CACO) is the focal point for civil aviation emergency preparedness activities and incident reporting, under the Transportation Safety Board of Canada – the official source of aviation accident and incident data.[224] The Canadian Transport Emergency Centre (CANUTEC) is operated by Transport Canada to assist emergency response personnel in handling dangerous goods emergencies, and receives close to 30,000 calls a year.[225]

**PUBLIC SAFETY CANADA**

Public Safety Canada (PS) was created in 2003 to ensure coordination across all federal departments and agencies responsible for national security and the safety of Canadians from natural disasters to crime and terrorism.[226] Under the *Emergency Management Act*, the Minister of Public Safety is responsible for promoting and coordinating emergency management plans, and for coordinating the Government of Canada's response to an emergency.[227]

Public Safety Canada developed the Federal Emergency Response Plan (FERP) in consultation with other government departments.[228] 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.[229]

An integrated Government of Canada response is required when:

- A province/territory requests federal support to deal with an emergency;
- An emergency affects multiple jurisdictions and/or departments, and it requires a coordinated response;

- An emergency directly involves federal assets, services, employees, statutory authority or responsibilities, or it affects confidence in government; and
- An emergency affects other aspects of the national interest.[230]

When an emergency requires an integrated "whole of government" response, the Public Safety Canada Regional Director coordinates the response on behalf of the federal departments in the region.[231]

## IV: Whole-of-Government in the Arctic: Current Operations & Exercises

During hearings conducted by the Standing Senate Committee on Fisheries and Oceans a whole-of-government approach to Arctic security was a common theme of discussion among experts and senior officials across departments with the aim of avoiding duplication and building on existing strengths.[232] As articulated by Canada Command in their Backgrounder titled 'The Canadian Forces in the North', effective stewardship of the North can only be achieved through productive partnerships between federal and territorial departments and agencies, and Northern peoples.[233] The vastness of the Canadian North requires a level of situational awareness that can only be facilitated through monitoring, intelligence collection and information sharing across all departments/agencies involved in Northern and Arctic operations in Canada.

It is important to recognize that there is a certain level of interoperability taking place between government departments and agencies in the conduct of sovereignty operations in the Canadian Arctic. Three mechanisms can be examined as contributory to the facilitation and organization of whole-of-government operations: Operation NANOOK, the Maritime Command Marine Security Operation Centres (MSOCs), and the Arctic Security Working Group (ASWG).

**Mechanism#1: Operation NANOOK**

Under Canada Command, Joint Task Force North (JTFN) conducts three major joint and integrated exercises[xv] annually: Operation NUNALIVUT in the High Arctic, Operation NUNAKPUT in the Western Arctic, and Operation NANOOK in the eastern Arctic.[xvi] These exercises are focused on the advancement of Canadian Forces (CF) capabilities in the Arctic, inter-agency coordination and improved coordination in responding to crises and emergencies.[234]

1. *Operation NUNALIVUT* is an annual 'enhanced Ranger' sovereignty patrol primarily involving the combined team of Canadian Rangers and 440 (Transport) Squadron, aimed at improving Ranger capabilities to support JTFN.[235]

[xv] In their Op NANOOK 07 Report, Canada Command's J7 Lessons Learned noted the confusion surrounding the use of the terms 'operation' and 'exercise'. Although for all practical purposes NANOOK consists of exercises, unwritten direction led to major DND joint activities in the North to be deemed operations; Steps are being taken to ensure responsibilities are more clear in future NANOOK operations.

[xvi] Prior to these sovereignty operations a number of joint and combined operations took place: Operation HUDSON SENTINEL in 2005 involved the CF, RCMP and Coast Guard; Operation LANCASTER in 2006 involving the Canadian Ice Service, RCMP, Parks Canada Agency, Fisheries and Oceans Canada and the Canadian Coast Guard; and finally the NARWHAL series in 2007 involved the coordination of the CF and RCMP in crises response scenarios.

2. *Operation NUNAKPUT* is an annual joint and integrated JTFN operation in cooperation with the RCMP, aimed at practicing interoperability and demonstrating our collective ability to respond to safety and security emergencies in the North. It focuses on aerial and marine surveillance.[236] Other government departments and agencies, such as the Canadian Coast Guard (CCG) and Fisheries and Oceans Canada (DFO), have also participated in the past.
3. *Operation NANOOK* is an annual joint and integrated sovereignty operation planned and co-directed by JTFN and Public Safety focusing on interoperability, command and control and interdepartmental/intergovernmental cooperation.[xvii]

Of interest to this report is Operation NANOOK - Canada's premier annual Northern sovereignty operation, specifically aimed at developing an effective whole-of-government approach to Canadian Arctic security challenges.[237] While other government departments (OGDs) retain the lead for dealing with most Northern security issues, they often draw upon the capabilities of the CF to help fulfill their mandates.[238] As stated in *CFDS* 2008, the CF is responsible for the exercise of Canadian sovereignty. In the Arctic, Canada's sovereignty is demonstrated via CF surveillance and control operations, which provides a more visible Canadian presence.[239] The CF must maintain the ability to respond in a timely and effective manner to threats and emergencies in cooperation with OGDs – enhancing the CF's interoperability and improving their capabilities.[240]

Past Lessons Learned Reports[xviii] have indicated the importance of direct and comprehensive liaison with OGDs. The following requirements were articulated:

- Mutual understanding of the capabilities, responsibilities and roles of OGD partners;
- Early buy-in and participation in Exercise planning, design and facilitation;
- Communications at tactical and operational level is essential and needs to be continually improved; and
- Establishment of a "common Arctic operating picture".[241]

[xvii] Lessons Learned on Op NANOOK 08, 09 and 10 were unavailable, therefore Op NANOOK 07 was presented in efforts to provide an overview of common issues in regards to this type of operation.
[xviii] Overarching themes gathered from CF Lessons Learned and Public Safety After-Action Reports from NANOOK 2007 and NANOOK 2009. For source information see: '*Exercise Op Nanook 2007 J7 Lessons Learned Report* (11 June 2008)' and '*Exercise Op NANOOK 2009 After-Action Report* (22 February 2010)'.

**Mechanism #2: Marine Security Operations Centres**

The closest thing to a central command/coordination centre for the Arctic are the DND-led MSOCs, which are argued to represent a whole-of-government approach and an "equal partnership" between departments and agencies involved in marine security.[242] A coastal Marine Security Operations Centre (MSOC) is located on the East and West coasts – in Halifax, Nova Scotia and Esquimalt, British Columbia. Arctic jurisdiction is divided longitudinally at 95 degrees west, though it is staffed jointly by five departments: CBSA, DND, the Canadian Coast Guard, the RCMP and Transport Canada.[243] The stated objective of these command centres is to proactively identify threats and to assist the lead department/agency in coordinating a response in efforts to generate maritime situational awareness.[244] This objective is facilitated by collaboration between government departments and agencies in the collection and analysis of intelligence and other information.[245]

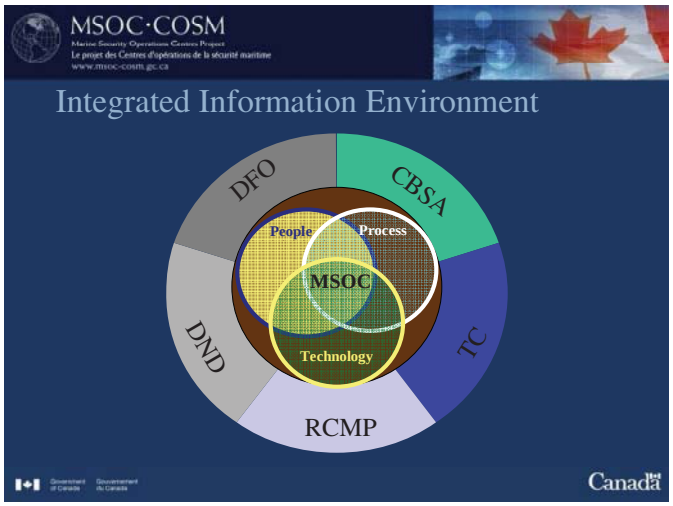


**Figure 4.1 MSCO Integrated Information Environment**

The MSOCs core functions are to "manage, analyze, generate, exchange and provide the collection of all marine information and intelligence, surveillance, and reconnaissance data subject to all Government of Canada, Agency and Departmental legislation, policies, regulations, guidelines and standards governing the acquisition, distribution, exchange, integration, retrieval of storage of all information and data between all participating agencies and departments; and to bring to bear all civilian and military resources necessary to respond to a marine security threat within the framework of the national emergency response structure."[246] Each partner provides a manager, intelligence analysts, watchkeepers and investigators. Information is compiled from all personnel 24/7 to create a Recognized Maritime Picture (RMP), Interest and Watch Lists, Weekly Civilian Maritime Activity Briefs, Threat/Risk Assessment, and a Weekly Maritime Security Summary.[247]

Communications, however, are not interoperable as the communication capabilities of each department or agency in the region evolving at a different pace over time.[248] Rather, the MSOCs

act as the central hub of communication, filtering information to and from departments and agencies as they receive it. To address this interoperability issue an Interdepartmental Maritime Integrated Command, Control and Communications (IMIC3) was announced in January 2010 to provide an information distribution system that provides maritime situational awareness to support planning and execution of marine operations through enhanced coordination and decision-making aids. Twelve Kingston Class and 44 Canadian Coast Guard sea-going vessels will be fitted with IMIC3 systems in order to link their shared surveillance picture with the MSOCs and the Canadian Coast Guard Regional Operation Centres. Although this project is not expected to be in full operation until 2014, this coordinating and information-sharing mechanism is an essential step toward conducting effective whole-of-government operations.

**Mechanism #3: Arctic Security Working Group**

In Ottawa, departmental coordination takes place in the form of an ad hoc committee of deputy ministers that overseas coordination of Canada's Northern Strategy. In addition, at the regional level the Arctic Security Working Group (ASWG) coordinates government departments and agencies over security issues and safety in the North.[249] The aim of the ASWG is to enhance the security and the exercise of sovereignty of Canada's North through information sharing and cooperation among federal and territorial government departments and agencies, Aboriginal governments and organizations, non-governmental organizations and other stakeholders operating in the North. Its stated objectives:

- To provide a forum for the passage of information and intelligence;
- To provide a venue for the coordination of activities;
- To generate synergy among all government departments and stakeholders operating in the North; and,
- To provide a venue for planning activities and for testing response capabilities.[250]

The ASWG has met on a biannual basis since 1999 and is composed of close to 80 representatives of federal and territorial governments, agencies and non-governmental organizations.[251] The working group operates on the idea that no single government department works independently in the North, and consequently, collaboration can be facilitated collectively and resources can be pooled to ensure Canada's presence is clear and strong.[252] During meetings, each department has the opportunity to present its activities and discuss items that affect all

members. Themes discussed have included developing strategies to improve interoperability, surveillance, communications, interdepartmental planning, operational responses and contingencies, intelligence sharing and critical infrastructure awareness.[253]

It is important to note that the ASWG is a forum, not a strategic command/coordination centre.[254] Rather, it provides a venue for planning activities and discussing items that affect all members.[255] For example, JTFN used the ASWG as an opportunity to facilitate OCG support and participation in its northern exercises.[256] However, the ASWG has proven to provide an effective means of establishing inter-organizational coordination as working group activities met the criteria for establishing inter-organizational trust. Interpersonal relationships are built on direct and informal contacts, creating networks, having shared activities and conducting joint planning and training activities".[257] The ASWG appears to meet these criteria as members reported the working group to effectively foster relationship building between government departments at all levels (municipal to federal) that may not normally interact in non-emergency situations.[258]

## VI: Lessons Learned

Operational environments such as the Canadian Arctic go beyond the jurisdiction of one government department or agency, therefore requiring multiple partners and multiple capabilities to address complex issues challenging the Government of Canada. A number of lessons learned can be gleaned from the three mechanisms referenced in Chapter V:

***Arctic security is complex and requires coordination across multiple federal departments and agencies***

The Arctic constitutes 40% of Canada's land mass and 75% of its coastal regions. The complexity of Arctic security goes beyond the breadth of one single federal department and therefore must be managed with a coordinated whole-of-government response. In the case of the Arctic, cooperation is essential, but poses challenges due to organizational differences, i.e. civil-military, organizational culture, etc.

***Awareness and familiarity between government departments continues to progress , but still requires improvement***

Unfamiliarity poses a significant barrier to establishing effective whole-of-government responses. Civilian and military government departments are better situated to deal with a future incident requiring more than one government department when they understand the roles and mandates of their partners. Additionally, obtaining and maintaining OGD buy-in means knowing how to incorporate other departments into the planning and performing process. It must be noted that events such as the ASWG and recent WOG exercises as part of the Nanook series continue to increase awareness and familiarity.

***Funding frameworks are complicated by multiple jurisdictions***

The issue of which department or agency pays for what is a challenging one; because a specific Arctic coordinating body does not exist in Ottawa (thus there is no whole-of-government funding framework). Funding for personnel and equipment is largely dependent on (a) who's jurisdiction the financial needs falls under, and (b) who has the requisite capabilities to respond to an issue – in the Arctic. The Canadian military and the Canadian Coast Guard have been overwhelmingly relied upon as platforms to address Northern safety and security problems based on their Arctic capabilities and resources.

***Communication and information sharing is weak***

One of the major findings of Lessons Learned analysis was that communication at the tactical and operational level needs continuous focus on improvement, in addition to improving familiarity with MOUs and regulations relevant to all parties involved. Although the MSOCs are evolving to strengthen information sharing and coordination of joint integrated responses across departments, communication is not currently completely interoperable and intelligence sharing is limited by liability and trust issues, especially between civilian and military organizations. The ASWG recognizes that communication is a necessary precursor to a coordinated response and therefore provides a forum for contacts to be made across departments for the purposes of dialogue and information exchange.

***Joint integrated exercises and working groups are essential to building interdepartmental trust***

The merits of developing positive working relationships through integrated joint exercises such as Operation NANOOK, and participating in integrated forums such as the Arctic Security Working Group (ASWG) are undeniable. Lessons Learned from Op NANOOK 07 and 09 indicated that exercises must involved all relevant OGDs[xix] and must be built around OGD requirements with CF in support roles..

**Key Considerations for Leadership in Whole-of-Government Operations**

Based on these lessons learned, the following considerations need to be developed in order for Canadian Forces members to provide leadership in a whole-of-government context, regardless of who has been assigned the lead role:

1) Cooperating, not Co-opting: Showing leadership does not translate into commanding – this has proven to be an issue of confusion in cases where the military must work in partnership with other government departments and agencies. Although leadership is a requisite component of command, it can also be exercised outside of it.[259] Leadership is about influencing people to achieve a shared objective, motivating others to do more than they thought possible. Cohesion and teamwork are in essence force multipliers, making a collective effort that is greater than the sum of its parts.

[xix] J7 Lessons Learned Report on Operation Nanook 07 indicated that the RCMP were unaware of the annual exercise and were not included in the 2007 operation.

2) Understanding OGD Roles and Mandates: Whole-of-government operations require stakeholders of departments and agencies involved to have a solid knowledge and understanding of each other's mandate, roles and responsibilities as well as the experience and expertise they bring to the table. This awareness of OGDs is developed and enhanced by working on integrated teams – preferably in non-emergency situations first.

3) Enhancing External Adaptability: One of the most effective means noted to strengthen interdepartmental working relationships is experience – experience interacting with OGDs and working towards a shared goal. This is accomplished at the tactical/operational level through joint training exercises such as Op NANOOK and at the strategic level through interdepartmental working groups. Being an 'effective CF leader' means being adaptive to external circumstances.[xx] In other words, a leader must be willing to work alongside non-military personnel and communicate with others through liaison and exchange of information.

4) Developing Trust: Enhancing interdepartmental communication requires a level of trust to be developed between government departments working together, in essence, establishing an operational network that promotes coordination.[260] Trust is built through interpersonal relationships. Specifically, research on inter-organizational trust indicates that trust built *before* an emergency, via integrated communication and joint activities/exercises, increases operational effectiveness during an emergency.[261]

5) Strengthening Communication: The timely exchange of credible information is essential to interagency coordination and cooperation – interoperability is difficult without it.[262] Research indicates that problems in emergency management are usually related to a breakdown in the information exchange system.[263] In other words, many communication problems that take place during a disaster are people problems, not equipment.[264]

Note: These considerations and associated competencies will be further explored and developed, among others, in future research.

[xx] See the CF Effectiveness Framework in *Leadership in the Canadian Forces: Leading People*, p3.

## VII: Closing Remarks

As stated in 2009 during the conduct of hearings regarding the operation of Government departments and agencies in the Arctic, the Senate Committee on Fisheries and Oceans saw a reoccurring theme across expert statements: "…success in the North depends on maintaining a close relationship between departments, avoiding duplication, making the best use of all available national assets in Canada's vast northern region, and building on existing strengths."[265] This close relationship requires cooperation, leadership, mutual mandate awareness, interagency trust and integrated communication at all levels in order to effectively and efficiently tackle safety and security threats in the Canadian Arctic.

This report highlights the requirement for continued research into developing mechanisms and strategies that encourage a more joined-up whole-of-government approach; in fact, moving towards a more Comprehensive Approach. In particular, communication, collaboration, culture and leadership issues need to be analyzed so that the Government of Canada can continue to improve its ability to deal with complex issues both domestically and internationally.

### Endnotes

[1] Gary Rice (2007) "Four Selected Intrusion Scenarios," *Vimy Papers: Defence Requirements for Canada's Arctic* (Calgary: University of Calgary Press): 65.
[2] Department of National Defence (2009a) "Arctic Security Working Group an Interface for Whole of Government Approach to Northern Sovereignty and Security," *Canada Command* (Ottawa: DND) http://www.canadacom.forces.gc.ca/daily/archive-north-eng.asp (Accessed 12 May 2010).
[3] Australia (2004) "Connecting Government: Whole of Government Responses to Australia's Priority Challenges," *Australian Public Service Commission/Management Advisory Commission.*
[4] Office of the Auditor General of Canada (2002) "Chapter 9: Modernizing accountability in the public sector," *Report of the Auditor General of Canada to the House of Commons.*
[5] Treasury Board Secretariat (2002) *Annual Report to Parliament: Canada's Performance 2002:* http://www.tbs-sct.gc.ca/pubs_pol/dcgpubs/mrrsp-psggr/wgf-cp-eng.asp
[6] Treasury Board Secretariat, 2002.
[7] Canada (2004) "Securing an Open Society: Canada's National Security Policy," *Privy Council Office:* http://www.pco-bcp.gc.ca/docs/information/publications/natsec-secnat/natsec-secnat-eng.pdf.
[8] Canada (2005) "International Policy Statement: A Role of pride and Influence in the World," *Privy Council Office.*
[9] Canada, 2005.
[10] Andy Tamas (2007) *Birkenstocks in the Barracks.* Monograph prepared for the Canadian Forces Leadership Institute (Kingston, ON).

[11] Leslie et al. (2009). *Developing a Comprehensive Approach to Canadian Forces Operations.* Canadian Military Journal Vol. 9, No 1. (Kingston, ON).
[12] Leslie et al., 2009.
[13] Russell, Ivan (2009) "Intergovernmental Cooperation and Coordination within Canadian Disaster and Emergency Management," Royal Roads University, 55.
[14] Russell, 2009.
[15] Bentley et al. (2008) *Broadsword or Rapier? The Canadian Forces Involvement in 21st Century Coalition Operations,* CFLI Technical Report 2008-1 (Canadian Forces Leadership Institute, Canadian Defence Academy, Kingston, ON).
[16] Bentley at al., 2008.
[17] Kenneth C. Eyre (1967), "Forty Years of Military Activity in the Canadian North, 1947-87," *Arctic Journal* (40) 4: 293.
[18] Eyre, 1967: 293.
[19] Eyre, 1967: 294.
[20] Eyre, 1967: 292.
[21] Eyre, 1967: 292.
[22] Dr. Rob Huebert (2006), "Renaissance in Canadian Arctic Security?" *Canadian Military Journal* (Kingston: Department of National Defence).
[23] Huebert, 2006.
[24] Arctic Council (2004), *Arctic Climate Impact Assessment: Impacts of a Warming Arctic* (New York: Cambridge University Press, 2004): 22.
[25] Arctic Council, 2004: 22.
[26] Arctic Council, 2004: 25.
[27] Arctic Council, 2004: 27.
[28] Arctic Council, 2004: 30.
[29]Arctic Council (2009), *Arctic Marine Shipping Assessment Report* (New York: ConocoPhillips): 72.
[30] James Kraska (2007), "The Law of the Sea Convention and the Northwest Passage," *International Journal of Marine and Coast Law*, Vol. 22 No. 2 (Nevada: Koninklijke Brill): 38.
[31] Kyle D. Christensen (2005), "Arctic Maritime Security and Defence: Canadian Northern Security Opportunities and Challenges," Technical Report TR2005/01 (Toronto: Defence R&D Canada): 42.
[32] Canada (2009b), "Controlling Canada's Arctic Waters: Role of the Canadian Coast Guard," *Report of the Standing Committee on Fisheries and Oceans* (Ottawa: Senate of Canada): 51.
[33] Canada (2006), *Canadian Arctic Sovereignty* (Ottawa: Parliamentary Information and Research Service): 6.
[34] Huebert, 2006.
[35] Huebert, 2006.
[36] Huebert, 2006.
[37] Huebert, 2006.
[38] Canada, 2006: 2.
[39] Canada, 2006: 2.
[40] Graeme Smith (2 September 2005), "Graham focuses on Arctic during visit to Russia," *The Globe and Mail* (Toronto): p. A5.
[41] Arctic Council, 2009.
[42] Talia Chung and Caroline Hyslop (2008) *The Arctic: A Canadian Parliamentary Chronology*, (Ottawa: Parliamentary Information and Research Service): 1.
[43] United Nations (1982), *United Nations Convention on the Law of the Sea* (Geneva: Office of Legal Affairs).
[44] Kraska, 2007: 48.
[45] Canada (2008a), *The Arctic: Canada's Legal Claims* (Ottawa: Parliamentary Information and Research Service): 4.
[46] Kraska, 2007: 48.
[47] DRDC (2008), "National Collaborations: Mapping the Arctic Ocean floor," *Defence Research and Development Canada Annual Report* (Toronto: Defence Research and Development Canada): 38-39.
[48] Canada, 2008: 5.
[49] Canada, 2008: 5.
[50] Canada, 2006: 2.
[51] Canada, 2006: 3.

[52] Kraska, 2007: 258.
[53] Arctic Council, 2009.
[54] Canada, 2008: 3.
[55] Canada, 2008: 3.
[56] Canada, 2008: 3.
[57] Canada, 2008: 3.
[58] Kraska (2007): 269.
[59] United Nations, 1982.
[60] United Nations, 1982.
[61] United Nations, 1982.
[62] Kraska, 2007: 38.
[63] Canada, 2008: 4.
[64] Kraska, 2007: 42.
[65] Canada, 2008: 4.
[66] Canada, 2008: 6.
[67] Rice, 2007: 65.
[68] DND (2009a) "The Canadian Forces in the North," *Canada Command Backgrounder* (Ottawa: DND) www.cfna.dnd.ca/09-002a-eng.asp.
[69] DND, 2009a.
[70] DND, 2009a.
[71] Canada, 2009b: x.
[72] Canada, 2009b: 13.
[73] Canada, 2009b: 59.
[74] DND (2011) "Canadian Rangers: Mission and Mandate," Army Backgrounder (Ottawa: DND) http://www.army.forces.gc.ca/land-terre/cr-rc/index-eng.asp.
[75] DND, 2009a.
[76] DND, 2009a.
[77] DND, 2009a.
[78] DND (2010a) "What We Do – Operations," Air Force Backgrounder (Ottawa: DND) http://www.airforce.forces.gc.ca/v2/page-eng.asp?id=16.
[79] OCdt Timothy Templeman (23 Apr 2008), "Air Force supports Arctic sovereignty operation," Air Force Articles. http://www.airforce.forces.gc.ca/v2/nr-sp/index-eng.asp?id=5985.
[80] DND, (2010b) "What We Do in Canada," Air Force Backgrounder (Ottawa: DND) http://www.airforce.forces.gc.ca/v2/page-eng.asp?id=13.
[81] DND, 2010b.
[82] DND, 2010b.
[83] DND, 2009c.
[84] Captain Jeff Manney (4 Apr 2007), "Arctic Nations, Arctic Challenge," Air Force Articles. http://www.airforce.forces.gc.ca/v2/nr-sp/index-eng.asp?id=2911.
[85] DND, 2009a.
[86] DND, 2009a.
[87] DND, 2009a.
[88] DND (2010c), "What We Do: Search and Rescue," Air Force Backgrounder (Ottawa: DND) http://www.airforce.forces.gc.ca/v2/page-eng.asp?id=17 (Accessed 6 Feb 2010).
[89] DND, 2010c.
[90] DND, 2010c.
[91] DND, 2010c.
[92] DND, 2010c.
[93] DND, 2010c.
[94] DND, 2010c.
[95] DND, 2010c.
[96] Canada, 2009d: x.
[97] DND, 2010c.
[98] Templeman, 2008.
[99] DND, 2010b.

[100] DND (2008b). Canada First Defence Strategy (Ottawa: Department of National Defence).
[101] Canada, 2009b: 24.
[102] Canada, 2006: 154.
[103] Ibid.
[104] Ibid.
[105] Canada, 2006: 167.
[106] DND, 2009a.
[107] Canada, 2009b: 23.
[108] Canada, 2009b: 23.
[109] DND, 2009a.
[110] DND, 2009a.
[111] DND, 2009a.
[112] Canada, 2009b: x.
[113] Christensen, 2005: 47.
[114] DND (2001), *LEADMARK: The Navy's Strategy for 2020* (Ottawa: Department of National Defence), 31.
[115] Christensen, 2005: 49.
[116] CASR (2004), "Who's Guarding our Coasts? Here's a hint: It isn't the Navy," *Canadian American Strategic Review,* http://www.casr.ca/ft-senate2.htm.
[117] Christensen, 2005: 56.
[118] Christensen, 2005: 57.
[119] Christensen, 2005: 57.
[120] Christensen, 2005: 58.
[121] Christensen, 2005: 58.
[122] Christensen, 2005: 58.
[123] Christensen, 2005: 53.
[124] Christensen, 2005: 55.
[125] Christensen, 2005: 55.
[126] Christensen, 2005: 55.
[127] Canada, 2009b: 25.
[128] DND (2010d), "Backgrounders: Arctic/offshore patrol ships," *Navy News* (Ottawa: DND) www.navy.forces.gc.ca/cms/3/3-a_eng.asp.
[129] DND, 2010d.
[130] Canada, 2009b: ix.
[131] Captain(N) Phil Webster (2007), "Arctic Sovereignty, Submarine Operations and Water Space Management," in Canadian Naval Review, 3(3) (Dalhousie University: Centre for Foreign Policy Studies), 14.
[132] Webster, 2007: 14.
[133] Webster, 2007: 14.
[134] Webster, 2007: 15.
[135] Webster, 2007: 15.
[136] Webster, 2007: 16.
[137] Canada, 2009b: 47.
[138] Canada, 2009b: 48.
[139] Canada, 2009b: 26.
[140] Canada, 2009b: 26.
[141] Canada, 2009b: 26.
[142] Canada, 2009b: 34.
[143] Canada, 2009b: 34.
[144] Canada, 2009b: 34.
[145] Canada, 2009b: 34.
[146] DFO (2010), Maritime Search and Rescue (SAR) in Canada," National Search and Rescue Program (NSP) Backgrounder (Ottawa: DFO) http://www.ccg-gcc.gc.ca/eng/CCG/SAR_Maritime_Sar.
[147] Canada, 2009b: 34.
[148] Canada, 2009b: 34.
[149] Canada, 2009b: 32.
[150] Canada, 2009b: 32.

[151] Canada, 2009b: 32.
[152] CASR, 2004.
[153] Canada, 2009b: 44.
[154] Canada, 2009b: 44.
[155] Canada, 2009b: 44.
[156] Canada, 2009b: 44.
[157] Canada, 2009b: 44.
[158] Canada, 2009b: 45.
[159] Canada, 2009b: 46.
[160] Canada, 2009b: 34.
[161] Canada, 2009b: 34.
[162] Canada, 2009b: 35.
[163] Canada, 2009b: 37.
[164] Canada, 2009b: 37.
[165] Canada, 2009b: 19.
[166] Canada, 2009b: 19.
[167] Canada, 2009b: ix.
[168] Transport Canada (2010a), "Government of Canada takes action to protect Canadian Arctic waters," Transport Canada Press Release: http://www.tc.gc.ca/eng/mediaroom/releases-2010-h078e-6019.htm
[169] Transport Canada, 2010a.
[170] Canada, 2009b: 33.
[171] Canada, 2009b: 33.
[172] Canada, 2009b: 38.
[173] Canada, 2009b: 39.
[174] Canada, 2009b: 39.
[175] Canada, 2009b: 39.
[176] Canada, 2009b: 39.
[177] Canada, 2009b: 40.
[178] Eyre, 1967: 293.
[179] RCMP (2002), "North to Arctic Shores," The RCMP in the North (Ottawa: PSC) http://www.rcmp-grc.gc.ca/hist/ori-deb/debuts11-eng.htm.
[180] RCMP, 2002.
[181] RCMP, 2002.
[182] RCMP, 2002.
[183] RCMP, 2002.
[184] RCMP, 2009b: 22.
[185] Caroline Ross (2009) "Policing in isolate communities," *The Gazette*, Vol.71 No.1 (Ottawa: PSC), 2.
[186] RCMP (2007a) "Canadian Sovereignty in the Arctic. Challenges for the RCMP," *Criminal Intelligence Brief* (Ottawa: PSC) 2.
[187] RCMP, 2007a: 6.
[188] RCMP, 2007a: 9.
[189] RCMP (2010a) "Border Integrity Program," RCMP in the North (Ottawa: PSC) http://www.rcmp-grc.gc.ca/bi-if/index-eng.htm.
[190] Ross, 2009.
[191] Ross, 2009.
[192] Ross, 2009.
[193] RCMP (2010b), "National Ports Strategy," RCMP in the North (Ottawa: PSC) http://www.rcmp-grc.gc.ca/fs-fd/pdfs/nat-ports-eng.pdf.
[194] RCMP, 2010b.
[195] RCMP, 2010b.
[196] RCMP, 2010b.
[197] Ross, 2009.
[198] Ross, 2009.
[199] Ross, 2009.
[200] Ross, 2009.

[201] Ross, 2009.
[202] Ross, 2009.
[203] Canada, 2009b: 34.
[204] Canada, 2009b: 34.
[205] Canada, 2009b: 39.
[206] Michael Byers (2009), Testament provided to the Standing Committee on National Defence, 2nd Session, *40th Parliament. Evidence Hearing* (Ottawa: Department of National Defence), 1.
[207] RCMP (2007b), "Immediate Action Rapid Deployment (IARD) Program," RCMP in the North (Ottawa: PSC) http://www.rcmp-grc.gc.ca/fs-fd/iard-drai-eng.htm.
[208] RCMP (2007c), "Incident Management Intervention Model (IMIM)," RCMP in the North (Ottawa: PSC) http://www.rcmp-grc.gc.ca/ccaps-spcca/cew-ai/imim-migi-eng.htm.
[209] Canada Border Services Agency, *Departmental Performance Report* 2009-2010: http://www.tbs-sct.gc.ca/dpr-rmr/2009-2010/inst/BSF/bsf01-eng.asp#s1x1.
[210] CBSA, 2009-10.
[211] CBSA, 2009-10.
[212] CBSA, 2009-10.
[213] Transport Canada (2005), *Guidelines for the Operation of Passenger Vessels in Canadian Arctic Waters* (Marine Safety Directorate, Transport Canada).
[214] CBSA (2008) Record of Meeting from the Border Commercial Consultative Committee, November 4-5, 2008: http://cbsa-asfc.gc.ca/agency-agence/consult/bccc-ccacf/2008-11-05-eng.html#c3
[215] Transport Canada (2010b): http://www.tc.gc.ca/eng/safety-menu.htm.
[216] Transport Canada, 2010b.
[217] Transport Canada, 2010b.
[218] Transport Canada, 2010b.
[219] Transport Canada, 2005.
[220] Transport Canada, 2005.
[221] Transport Canada, 2005.
[222] Transport Canada (2010c) *Environmental Prevention, Preparedness and Response*: http://www.tc.gc.ca/eng/marinesafety/oep-ers-arcticcouncil-1965.htm.
[223] Transport Canada (2010d) *National Airports Policy*: http://www.tc.gc.ca/eng/programs/airports-policy-nap-72.htm.
[224] Transport Canada (2010e) *Emergencies and Incident Reporting*: http://www.tc.gc.ca/eng/civilaviation/opssvs/emergencies-incidentreporting-menu.htm.
[225] Transport Canada (2010f) *CANUTEC Services*: http://www.tc.gc.ca/eng/canutec/services-249.htm.
[226] Public Safety Canada: www.publicsafety.gc.ca
[227] Canada (January 2011), *National Emergency Response System,* Public Safety Canada: http://www.publicsafety.gc.ca/prg/em/_fl/ners-eng.pdf.
[228] Public Safety, 2011.
[229] Public Safety, 2011.
[230] Public Safety, 2011.
[231] Public Safety, 2011.
[232] Canada, 2009b: 11.
[233] DND, 2009a.
[234] Canada, 2009b: 13.
[235] DND, 2009a.
[236] DND, 2009a.
[237] DND, 2009a.
[238] DND (2010e) *Questions and Answers 10.01, Subject: Operation NANOOK 10* (Canada Command): http://canadacom.mil.ca/spec/qa-nanook10-eng.pdf.
[239] DND, 2010e.
[240] DND, 2010e.
[241] DND: *Exercise Op Nanook 2007 J7 Lessons Learned Report* (11 June 2008)' and Public Safety: '*Exercise Op NANOOK 2009 After-Action Report* (22 February 2010)'.
[242] DND (2007) "Mission and Vision," *Marine Security Operations Centres Project*: http://msoc-cosm.gc.ca/abo-ap/mv/index-eng.asp.

[243] Canada, 2009b: 42.
[244] Canada, 2009b: 27.
[245] DND (29 Mar 2006) "Communiqué 001," Marine Security Operations Centres (MSOC) Project Management Office, ADM Information Management: http://msoc-cosm.gc.ca/com/com/29032006-eng.asp.
[246] Cook, LCdr Ian (Feb 2010), "Marine Security Operations Centres," Presentation: http://cfd.mil.ca/websites/Resources/djfcplus/Intranet/DJCP7/OCB/MSOCE_Brief.ppt.
[247] Cook, 2010.
[248] Canada, 2009b: 43.
[249] DND (16 May 2007), "16th Meeting of the Arctic Security Working Group," DND News Room (Ottawa: DND) http://www.forces.gc.ca/site/news-nouvelles/news-nouvelles-eng.asp?cat=00&id=2287.
[250] ASWG (November 2010), "Objectives," ASWG Aim and Terms of Reference.
[251] ASWG, 2010.
[252] ASWG, 2010.
[253] Russell, 2009: 54.
[254] DND (2009b) "Arctic Security Working Group an Interface for Whole of Government Approach to Northern Sovereignty and Security," Canada Command (Ottawa: DND) http://www.canadacom.forces.gc.ca/daily/archive-north-eng.asp.
[255] DND, 2009b.
[256] Russell, 2009: 55.
[257] Russell, 2009: 56.
[258] Russell, 2009: 56.
[259] Canadian Forces Leadership Institute (2007), "Chapter 3: Mission Success Through Leading Others," Leadership in the Canadian Forces: Leading People, p28.
[260] R.T. Sylves, & W.L. Waugh (1996), *Disaster Management in the U.S. and Canada: The Politics, Policymaking, Administration, and Analysis of Emergency Management* (2nd ed.) (Springfield, Ill.: Charles C. Thomas).
[261] Tricia Wachtendorf (2001), *Suggestions for Canadian Inter-organizational Collaboration in Disaster Mitigation* (University of Delaware Disaster Research Centre): http://dspace.udel.edu:8080/dspace/bitstream/19716/682/1/PP312.pdf
[262] Russell, 2009: 9.
[263] H. Eelco & M.D. Dykstra (2003), "Toward an International System Model in Emergency Management: Information, Communications, and Coordination in Emergency Management," *Public and Private Sector Approaches in Different Countries and Systems*: https://67.192.124.97/peri/images/file/InternationalSystemModel.pdf
[264] E. Auf der Heide (1989), Disaster response: Principles of preparation and coordination. St. Louis, MO: CV Mosby.
[265] Canada, 2009b: 11.

## Bibliography


Anon (2004), "Who's Guarding our Coasts? Here's a hint: It isn't the Navy," *Canadian American Strategic Review,* http://www.casr.ca/ft-senate2.htm.

Arctic Council (2004), *Arctic Climate Impact Assessment: Impacts of a Warming Arctic* (New York: Cambridge University Press, 2004): 22.

Arctic Council (2009), *Arctic Marine Shipping Assessment Report* (New York: ConocoPhillips): 72.

Arctic Security Working Group (November 2010), "Objectives," ASWG Aim and Terms of Reference.

Auf der Heide, E. (1989). Disaster response: Principles of preparation and coordination. St. Louis, MO: CV Mosby.

Canadian Forces Leadership Institute (2007), "Chapter 3: Mission Success through Leading Others," Leadership in the Canadian Forces: Leading People, p28.

Australia (2004). "Connecting Government: Whole of Government Responses to Australia's Priority Challenges." *Australian Public Service Commission/Management Advisory Commission.*

Bentley et al. (2008) *Broadsword or Rapier? The Canadian Forces Involvement in 21st Century Coalition Operations,* CFLI Technical Report 2008-1 (Canadian Forces Leadership Institute, Canadian Defence Academy, Kingston, ON).

Byers, Michael (2009). Testament provided to the Standing Committee on National Defence, 2nd Session, *40th Parliament. Evidence Hearing* (Ottawa: Department of National Defence).

Canada (2004). "Securing an Open Society: Canada's National Security Policy." *Privy Council Office:* http://www.pco-bcp.gc.ca/docs/information/publications/natsec-secnat/natsec-secnat-eng.pdf.

Canada (2005). "International Policy Statement: A Role of pride and Influence in the World." *Privy Council Office.*

Canada (2006). *Canadian Arctic Sovereignty* (Ottawa: Parliamentary Information and Research Service).

Canada (2008). *The Arctic: Canada's Legal Claims* (Ottawa: Parliamentary Information and Research Service).

Canada (2009a). "Chapter 9: Modernizing accountability in the public sector." *Report of the Auditor General of Canada to the House of Commons.* Office of the Auditor General of Canada.

Canada (2009b). "Controlling Canada's Arctic Waters: Role of the Canadian Coast Guard." *Report of the Standing Committee on Fisheries and Oceans* (Ottawa: Senate of Canada).

Canada Border Services Agency, *Departmental Performance Report* 2009-2010 (Ottawa: CBSA) http://www.tbs-sct.gc.ca/dpr-rmr/2009-2010/inst/BSF/bsf01-eng.asp#s1x1.

Canada Border Services Agency (2008) Record of Meeting from the Border Commercial Consultative Committee, November 4-5, 2008 2010 (Ottawa: CBSA) http://cbsa-asfc.gc.ca/agency-agence/consult/bccc-ccacf/2008-11-05-eng.html#c3.

Chung, Talia and Caroline Hyslop (2008). *The Arctic: A Canadian Parliamentary Chronology* (Ottawa: Parliamentary Information and Research Service).

Christensen, Kyle D. (2005). "Arctic Maritime Security and Defence: Canadian Northern Security Opportunities and Challenges," Technical Report TR2005/01 (Toronto: Defence R&D Canada).

Cook, LCdr Ian (Feb 2010), "Marine Security Operations Centres," Presentation: http://cfd.mil.ca/websites/Resources/djfcplus/Intranet/DJCP7/OCB/MSOCE_Brief.ppt.

Department of Fisheries and Oceans (2010). Maritime Search and Rescue (SAR) in Canada," National Search and Rescue Program (NSP) Backgrounder (Ottawa: DFO) http://www.ccg-gcc.gc.ca/eng/CCG/SAR_Maritime_Sar.

Department of National Defence (2001), *LEADMARK: The Navy's Strategy for 2020* (Ottawa: DND).

DND (29 Mar 2006) "Communiqué 001," Marine Security Operations Centres (MSOC) Project Management Office, ADM Information Management: http://msoc-cosm.gc.ca/com/com/29032006-eng.asp.

DND (2007) "Mission and Vision," *Marine Security Operations Centres Project*: http://msoc-cosm.gc.ca/abo-ap/mv/index-eng.asp.

DND (16 May 2007), "16th Meeting of the Arctic Security Working Group," DND News Room (Ottawa: DND) http://www.forces.gc.ca/site/news-nouvelles/news-nouvelles-eng.asp?cat=00&id=2287.

DND (2008a), "National Collaborations: Mapping the Arctic Ocean floor," *Defence Research and Development Canada Annual Report* (Toronto: Defence Research and Development Canada): 38-39.

DND (2008b). Canada First Defence Strategy (Ottawa: Department of National Defence).

DND (2009a) "The Canadian Forces in the North," *Canada Command Backgrounder* (Ottawa: DND) www.cfna.dnd.ca/09-002a-eng.asp.

DND (2009b) "Arctic Security Working Group an Interface for Whole of Government Approach to Northern Sovereignty and Security," *Canada Command* (Ottawa: DND) http://www.canadacom.forces.gc.ca/daily/archive-north-eng.asp (Accessed 12 May 2010).

DND (2010a) "What We Do – Operations," Air Force Backgrounder (Ottawa: DND) http://www.airforce.forces.gc.ca/v2/page-eng.asp?id=16.

DND (2010b) "What We Do in Canada," Air Force Backgrounder (Ottawa: DND) http://www.airforce.forces.gc.ca/v2/page-eng.asp?id=13.

DND (2010c), "What We Do: Search and Rescue," Air Force Backgrounder (Ottawa: DND) http://www.airforce.forces.gc.ca/v2/page-eng.asp?id=17 (Accessed 6 Feb 2010).

DND (2010d), "Backgrounders: Arctic/offshore patrol ships," *Navy News* (Ottawa: DND) www.navy.forces.gc.ca/cms/3/3-a_eng.asp.

DND (2010e) *Questions and Answers 10.01, Subject: Operation NANOOK 10* (Canada Command): http://canadacom.mil.ca/spec/qa-nanook10-eng.pdf.

DND (2011) "Canadian Rangers: Mission and Mandate." Army Backgrounder (Ottawa: DND) http://www.army.forces.gc.ca/land-terre/cr-rc/index-eng.asp.

Eelco, H. and M.D. Dykstra (2003). "Toward an International System Model in Emergency Management: Information, Communications, and Coordination in Emergency Management." *Public and Private Sector Approaches in Different Countries and Systems*: https://67.192.124.97/peri/images/file/InternationalSystemModel.pdf

Eyre, Kenneth C. (1967). "Forty Years of Military Activity in the Canadian North, 1947-87," *Arctic Journal* (40) 4: 293.

Huebert, Dr. Rob (2006). "Renaissance in Canadian Arctic Security?" *Canadian Military Journal* (Kingston: Department of National Defence).

Kraska, James (2007). "The Law of the Sea Convention and the Northwest Passage," *International Journal of Marine and Coast Law*, Vol. 22 No. 2 (Nevada: Koninklijke Brill): 38.

Leslie et al. (2009). *Developing a Comprehensive Approach to Canadian Forces Operations.* Canadian Military Journal Vol. 9, No 1. (Kingston, ON).

Manney, Captain Jeff (4 Apr 2007a). "Arctic Nations, Arctic Challenge," Air Force Articles. http://www.airforce.forces.gc.ca/v2/nr-sp/index-eng.asp?id=2911.

Public Safety (January 2011), *National Emergency Response System,* Public Safety Canada: http://www.publicsafety.gc.ca/prg/em/_fl/ners-eng.pdf.

Royal Canadian Mounted Police (2002). "North to Arctic Shores." The RCMP in the North (Ottawa: RCMP) http://www.rcmp-grc.gc.ca/hist/ori-deb/debuts11-eng.htm.

Royal Canadian Mounted Police (2007a). "Canadian Sovereignty in the Arctic. Challenges for the RCMP." *Criminal Intelligence Brief* (Ottawa: RCMP).

RCMP (2007b). "Immediate Action Rapid Deployment (IARD) Program." RCMP in the North (Ottawa: RCMP) http://www.rcmp-grc.gc.ca/fs-fd/iard-drai-eng.htm.

Royal Canadian Mounted Police (2007c). "Incident Management Intervention Model (IMIM)." RCMP in the North (Ottawa: RCMP) http://www.rcmp-grc.gc.ca/ccaps-spcca/cew-ai/imim-migi-eng.htm.

Royal Canadian Mounted Police (2010a). "Border Integrity Program." RCMP in the North (Ottawa: RCMP) http://www.rcmp-grc.gc.ca/bi-if/index-eng.htm.

Royal Canadian Mounted Police (2010b). "National Ports Strategy." RCMP in the North (Ottawa: RCMP) http://www.rcmp-grc.gc.ca/fs-fd/pdfs/nat-ports-eng.pdf.

Rice, Gary (2007) "Four Selected Intrusion Scenarios," *Vimy Papers: Defence Requirements for Canada's Arctic* (Calgary: University of Calgary Press): 65.

Ross, Caroline (2009). "Policing in isolate communities." *The Gazette*, Vol.71 No.1 (Ottawa: PSC).

Russell, Ivan (2009) "Intergovernmental Cooperation and Coordination within Canadian Disaster and Emergency Management," Royal Roads University, 55.

Smith, Graeme (2 September 2005). "Graham focuses on Arctic during visit to Russia," *The Globe and Mail* (Toronto): p. A5.

Sylves, R.T. and W.L. Waugh (1996). *Disaster Management in the U.S. and Canada: The Politics, Policymaking, Administration, and Analysis of Emergency Management* (2nd ed.) (Springfield, Ill.: Charles C. Thomas).

Tamas, Andy (2007). *Birkenstocks in the Barracks.* Monograph prepared for the Canadian Forces Leadership Institute (Kingston, ON).

Templeman, OCdt Timothy (23 Apr 2008). "Air Force supports Arctic sovereignty operation," Air Force Articles. http://www.airforce.forces.gc.ca/v2/nr-sp/index-eng.asp?id=5985.

Transport Canada (2005). *Guidelines for the Operation of Passenger Vessels in Canadian Arctic Waters* (Marine Safety Directorate, Transport Canada).

Transport Canada (2010a). "Government of Canada takes action to protect Canadian Arctic waters." Transport Canada Press Release: http://www.tc.gc.ca/eng/mediaroom/releases-2010-h078e-6019.htm

Transport Canada (2010b): http://www.tc.gc.ca/eng/safety-menu.htm.

Transport Canada (2010c). *Environmental Prevention, Preparedness and Response*: http://www.tc.gc.ca/eng/marinesafety/oep-ers-arcticcouncil-1965.htm.

Transport Canada (2010d). *National Airports Policy*: http://www.tc.gc.ca/eng/programs/airports-policy-nap-72.htm.

Transport Canada (2010e). *Emergencies and Incident Reporting*: http://www.tc.gc.ca/eng/civilaviation/opssvs/emergencies-incidentreporting-menu.htm.

Transport Canada (2010f). *CANUTEC Services*:http://www.tc.gc.ca/eng/canutec/services-249.htm.

Treasury Board Secretariat (2002) *Annual Report to Parliament: Canada's Performance 2002:* http://www.tbs-sct.gc.ca/pubs_pol/dcgpubs/mrrsp-psggr/wgf-cp-eng.asp

United Nations (1982), *United Nations Convention on the Law of the Sea* (Geneva: Office of Legal Affairs).

Wachtendorf, Tricia (2001). *Suggestions for Canadian Inter-organizational Collaboration in Disaster Mitigation* (University of Delaware Disaster Research Centre): http://dspace.udel.edu:8080/dspace/bitstream/19716/682/1/PP312.pdf

Webster, Captain(N) Phil (2007). "Arctic Sovereignty, Submarine Operations and Water Space Management," in Canadian Naval Review, 3(3) (Dalhousie University: Centre for Foreign Policy Studies), 14.

**Department of National Defence**
**www.forces.gc.ca**


**Canadian Defence Academy**
**www.cda-acd.forces.gc.ca**


**Canadian Forces Leadership Institute**
**www.cda-acd.forces.gc.ca/cfli/-ilfc/index-eng.asp**