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“THE NORTH POLE IS THE CENTRE OF THE NORTHERN HEMISPHERE” – CONSIDERING AN OPERATIONAL FRAMEWORK FOR ARCTIC PATROL SHIP OPERATIONS

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Master of Defence Studies

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SHIP OPERATIONS**

By LCdr R. Blair Saltel

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ABSTRACT

Government policy statements place high importance in achieving regular presence in Canada's Arctic. The main Naval contribution to this initiative is the Arctic Offshore Patrol Ship.

With limited experience conducting missions in all Arctic seasons and conditions, the Navy will face many challenges in training and equipping crews and planning missions to effectively support higher government initiatives. Climate change, renewed private interests in the Arctic and capability gaps in surveillance and enforcement regimes will all require the Navy's attention with a limited planning cycle to adequately prepare.

Extensive Canadian Forces experience and success in overseas humanitarian and combat missions bring sufficient corporate knowledge to begin Arctic planning and avoid the inefficiencies of relearning old lessons. Whole of Government initiatives, developing broad spectrum Situational Awareness, understanding local cultures and coordinating actions in line with higher government direction all have the same effectiveness in Arctic operations as they did in Haiti or Afghanistan.

To overcome frequent personnel and training cycles and focus on consistent engagement of northern communities and evolving northern naval skill sets, a robust operational framework championed by Canada Command is fundamentally necessary. Furthermore, as experience in regular, all-season Arctic operations permeates the Canadian Forces, relevant areas of expertise can then help in successful future missions overseas.

INTRODUCTION

The Canadian Arctic is a vast and expansive area. Despite the proclivity of modern information-gathering satellites and other means, the Arctic remains largely unknown to present-day Canadians. Not necessarily centrally topical to the average Canadian public, it has been observed that “there may be more books on the Canadian Arctic than people who live there.”¹ Arguments for successful achievement of concepts such as “sovereignty,” “development” or “security” stem from public academics or private interests but often remain at the strategic level.

The Canadian Arctic, aside from ecological, demographic and geographic complexity, has complex governance. Multiple government agencies are intimately involved with developing the North. While expanding its operations in this forum, the Canadian Forces (CF) will have to select and develop niche capabilities, while leveraging the talents of its personnel to promote synergy in accomplishing strategic Government goals. As Canada continues to evolve Whole of Government (WOG) approaches to various issues, it is evident that a similar approach for CF planning will benefit all.

The CF operates under the direction of providing surveillance and defence to Canadian shores, no matter their remoteness.² The latest strategy on defence is the 2008

¹ Ken S. Coates, P. Whitney Lackenbauer, William R. Morrison and Greg Poelzer, *Arctic Front - Defending Canada in the Far North* (Toronto: Thomas Allen Publishers, 2008), 219.

² The 1988/89 “Defence Update” highlighted a requirement for Canadian Naval expansion to provide a more robust maritime presence, with the expectation that procured nuclear submarines were the only means to exercise suitable Arctic control. The 1994 White Paper reiterated the need to include Arctic patrols in regular planning. Canada. Department of National Defence, *Defence Update 1988-89* (Ottawa: Department of National Defence, 1988), 7 and Canada. Department of National Defence, “1994 White Paper on Defence,” Department of National Defence, <http://www.forces.gc.ca/admpol/1994%20White%20Paper%20on%20Defence.htm> (accessed January 12, 2011).

Canada First Defence Strategy (CFDS). The six tasks³ the CFDS lays out for the CF to achieve are to be conducted anywhere in Canada, including the remote, Arctic environment. Thus CF planning and preparedness will need to continue to evolve until smooth, recurring operations can be conducted successfully in any Canadian environment.⁴

The CF's recent experiences abroad have required new skill sets to account for the irregular aspects of conflict which it has faced. In addition, the CF has also deployed abroad to assist in humanitarian efforts, to contribute to the restoration of living conditions and to promote Canadian aid efforts on the world stage. A declared learning institution, the CF is expected to draw upon past experiences and associate relevant lessons and developed skill sets to apply to other settings and missions.⁵ Thus operational planners assigned to CF efforts in the Arctic should be able to transfer lessons accumulated from years fighting in Afghanistan, humanitarian assistance in Haiti, or domestic security operations such as the 2010 Olympic Games in Vancouver.

The CF has a long history of operating in the Arctic, with focus of attention and allocation of funds have waxing and waning over the years. The headquarters in Joint Task Force North (JTFN), Canadian Forces Station (CFS) Alert and North American Aerospace Defence (NORAD) facilities all provide permanent examples of military

³ The six main tasks given by the CFDS to the CF are: conduct daily domestic and continental operations, including in the Arctic and through NORAD; support a major international event in Canada (*i.e.*: Vancouver Olympics); respond to a major terrorist attack; support civilian authorities during a crisis (*i.e.*: natural disaster); lead and/or conduct a major international operation for an extended period (*i.e.*: NATO ISAF in Afghanistan); and deploy forces in response to crises elsewhere in the world for shorter periods (*i.e.*: humanitarian relief in Haiti). Canada. Dept. of National Defence, *Canada First Defence Strategy*. (Ottawa: Government of Canada, 2008), 3.

⁴ *Ibid.*, 8.

⁵ *Duty with Honour* describes the desired professional culture the CF wishes to perpetuate within itself. Canadian Forces Leadership Institute, *Duty with Honour : The Profession of Arms in Canada* (Ottawa: Canadian Forces Leadership Institute, 2003), 65, <http://www.cda.forces.gc.ca/cfli-ilfc/doc/dwh-eng.pdf> (accessed September 14, 2010).

attention on the Arctic.⁶ However, these facilities are static, with only Canadian Rangers providing regular patrols as “eyes and ears” in the remote regions of Canada’s North.

One consistent consideration must always remain when planners seek to recall history. As Shelagh Grant observed, the North has two distinct histories relating to it: “one representing the white man’s experiences, the other on the indigenous people, the Inuit.”⁷ It will do no good to simply recall and seek to leverage the successes achieved or the lessons learned from a purely Canadian military history point of view. The entire *government* presence as a whole has had a much more wide and varied history in relating to the Inuit. Past issues pertaining to residential schools, prejudicial actions by police or forced relocations all form the collective memories of northern inhabitants. It will be crucial for military planners not to lose sight of how the military will not be seen as a separate and distinct entity from other government departments that have had different experiences in the North.

The regular presence sought by the Government shall be achieved largely via the new Arctic Offshore Patrol Ship (AOPS). The CF, particularly its Naval branch, has limited experience in Arctic operations, meaning many challenges lie ahead. In order to achieve best success and synergy within the complex governance structure present in the Canadian Arctic, an operational-level framework will be required, with the full support of its headquarters to most effectively conduct AOPS missions. Present CF doctrine and successful experience in conducting humanitarian, counter-insurgency and other missions

⁶ Canadian military history in the North is a topic easily accessible through many recent books. The Bibliography lists well-received books from Sheila Grant, Ken S. Coates and Charles Emmerson. For a comprehensive yet brief summary, see Joint Task Force North, "The Canadian Forces in the North," Joint Task Force North, <http://www.cfna.forces.ca/nr-sp/09-002a-eng.asp> (accessed March 8, 2011).

⁷ Shelagh D. Grant, "Inuit History in the Next Millennium: Challenges and Rewards," in *Northern Visions: New Perspectives on the North in Canadian History*, eds. Kerry Abel and Ken S. Coates (Peterborough: Broadview Press, 2001), 91.

both conducted abroad and within Canada's borders are sufficient starting points so long as they are properly leveraged and adapted to the Arctic environment.

The Concept of Employment for AOPS has recently been published, listing its primary three tasks as "Sovereignty Patrols, Maritime Domain Awareness, and Assistance to Other Government Departments (OGDs)."⁸ This strategic level direction implies a huge amount of lower tasks for operational and tactical level planners to determine and action in order to achieve a smooth and successful implementation. A common theme in this paper will be identifying and examining experience gained in the larger Fleet, and determining how best to adapt this knowledge to AOPS operations and the Arctic environment.

The initial years of AOPS operations should be largely oriented towards learning about operating in the Canadian Arctic environment and building a level of cultural sensitivity towards the local population and governance structure. While present-day Naval deployments are tactically honed at the ship-level by the Commanding Officer, AOPS command teams should be provided a strategic road map of goals to achieve during their scheduled missions in the Arctic. The numerous expertises and professionalism that CF personnel can provide a positive influence and contribute to any number of already-existing community programs which means that seaborne operations should only be a fraction of AOPS mission planning.

This paper will not seek to inhibit the tactical freedom of Commanding Officers of ships that have not even been delivered yet. It will provide recommendations for

⁸ These primary tasks also satisfy direction on domestic operations in CFDS. Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment* (Ottawa: Maritime Command, 2011), 7 and Canada. Dept. of National Defence, *Canada First Defence Strategy.*, 7.

operational level planners or highlight details that should be considered at operational and tactical levels to incorporate into training programs. Planners must approach AOPS missions with a WOG mindset, requiring relationships fostered at a higher level than the individual seagoing unit. Consistent cooperation in this way will allow CF efforts to be fully effective in the region complementing rather than inhibit already present initiatives and allowing the CF to fully support any ongoing or planned Government interests. These relationships already exist in various areas of the CF, geared towards accomplishing legacy missions such as research and development or intelligence sharing. These relationships can be leveraged and expanded in scope, avoiding the difficulties of standing up new institutions or finding availability for new positions in an institution facing manning constraints.

ARCTIC OFFSHORE PATROL SHIP

The AOPS is currently still in the design stage, with an expected delivery of the first six to eight hulls expected by 2015.⁹ Final design specifications are described as similar to the Norwegian *Svalbard*-class patrol ship.¹⁰ Thus AOPS will be smaller in size than the present workhorse of the Canadian Naval Fleet, the *Halifax*-class Patrol Frigates, but of similar tonnage due to hull materials and polar design factors.¹¹ Regardless of

⁹ Project Management Office - Arctic Offshore Patrol Ship, "Schedule- Arctic/Offshore Patrol Ship Project," Assistant Deputy Minister (Materiel), <http://www.forces.gc.ca/aete/schedule-echeancier2-eng.asp> (accessed January 23, 2011).

¹⁰ Canadian American Strategic Review, "A/OPS - Armed Naval Icebreakers," Canadian American Strategic Review, <http://www.casr.ca/doc-dnd-icebreaker.htm> (accessed March 8, 2011) and Norway. Royal Norwegian Navy (Sjoforsvaret), "KV Svalbard W 303/LBSV," Royal Norwegian Navy, <http://www.mil.no/sjo/kv/start/fartoyene/article.jhtml?articleID=156016> (accessed March 9, 2011).

¹¹ STX Canada was contracted to assist DND in developing the technical specifications for AOPS. AOPS is presently described as being 98 m long (25% shorter than a *Halifax*-Class frigate), but displacing 5700 tonnes (20% heavier than a *Halifax*-Class). Dan McGreer, "The Canadian Arctic Offshore Patrol Ship"

final appearance, key specifications required of the design shall need to resonate through any operational planning considerations. The vessels are intended to operate in the Arctic throughout the year (able to navigate through first-year ice only), sustaining operations for four months. The ship will be capable of communicating with the national defence network (for both unclassified and classified information), will be armed with a gun and carry a helicopter.¹² The flight deck will be compatible with the large CH148 *Cyclone*, as well as aircraft used by OGDs, such as the smaller Coast Guard MMB Bo 105.¹³

The AOPS is not the sole project being developed to improve government capabilities in the North. Government policy describes increasing the capabilities of research, training and mineral resource exploitation.¹⁴ These shall be discussed when relevant interaction with AOPS seems likely.

This paper will provide an overview of the Canadian Arctic environment, describe aspects of the Inuit culture pertinent to planning, the social and environmental challenges faced by northern communities and an overview of the presently understood capabilities of the planned Arctic patrol ships. The intent is to describe the Canadian Arctic as a theatre of operations, with recommendations for shaping an AOPS deployment.

(Helsinki, STX Canada, March 4, 2010), http://www.akerarctic.fi/15.%20McGreer_Arctic%20Passion%20Seminar%202010.pdf (accessed March 9, 2011).

¹² Project Management Office - Arctic Offshore Patrol Ship, "Arctic/Offshore Patrol Ship (PMO AOPS)," Assistant Deputy Minister (Materiel), <http://www.forces.gc.ca/aete/arcticoffshorepatrolshippmoaops-projetnavirevaisseaudepartouilleenmerenarctiquebgpnpea-eng.asp> (accessed March 6, 2011).

¹³ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010* (Ottawa: Assistant Deputy Minister (Materiel), 2010), 9. Information about CCG aircraft can be found at: http://www.ccg-gcc.gc.ca/eng/CCG/CCG_Helicopters.

¹⁴ Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future* (Ottawa: Minister of Indian and Northern Affairs, 2009), 10, <http://www.northernstrategy.ca/cns/cns-eng.asp> (accessed December 18, 2010) and Assistant Deputy Minister (Policy), *ADM(Pol) Quarterly Update on DND/CF Arctic Projects* (Ottawa: Assistant Deputy Minister (Policy), [2011]) (accessed February 10, 2011).

CHAPTER 1 – THE ARCTIC THEATRE

The need to properly understand a theatre or area of operations in order for commanders at all levels to make informed decisions is assisted by the CF Intelligence methodology. It seeks to contribute to planning, to warn commanders of threats (be they adversarial, medical or environmental) in time to take effective counter action, provide an understanding of the environment and situation and an insight into the local populations, customs and holdings.¹⁵

To focus effort, intelligence is categorized into subjects. Background information, history, statistics and climate can all be considered Basic Intelligence.¹⁶ Other areas include Economic Intelligence, Political Intelligence, Logistics Intelligence, Infrastructure Intelligence, Geospatial Intelligence, Sociological Intelligence, Health Intelligence, Medical Intelligence and Security Intelligence.¹⁷ In the Arctic, all of these subjects and issues have relevance. Regular planning practices involve focusing a team to answer key questions involved in preparing operations, either abroad, or in support of civil powers. This involves fusing data based on the aforementioned subjects, gathered from a host of sources and outputted to satisfy senior commanders.¹⁸

¹⁵Department of National Defence, *B-GJ-005-200/FP-000 Joint Intelligence Doctrine* (Ottawa: Chief of the Defence Staff, 2003), 2.

¹⁶*Ibid.*, 8.

¹⁷ For example, Logistics Intelligence would allow commanders to understand what roads could tolerate certain loads during differing times of the year, or where levels of stores/goods could be purchased to support a certain number of troops. Medical Intelligence would include an understanding of not only risks to personnel, but also health issues of communities, to better understand local temperaments and human well-being. *Ibid.*, 24.

¹⁸ U.S. Army Training and Doctrine Command, *Intelligence Preparation of the Battlespace* (Washington, DC: Department of the Army, 2009), 79 (accessed February 06, 2011).

While this doctrine is not Canadian, it is widely used by Canadian Intelligence members to augment Canadian practices.

Good intelligence practice utilizes an all-source approach, seeking to leverage any accessible means to build a comprehensive understanding of an area of operations.¹⁹ Within Canada, domestic intelligence collection is highly regulated by law and involves multiple civilian agencies.²⁰ For Canadian Arctic operations, a WOG approach will ensure that all concerned agencies in the region are able to pool resources.²¹ A minor example is determining the locations of population centres and accompanying statistics. There is already a publically available, interactive map of Inuit communities resident with Indian and Northern Affairs Canada (INAC).²² With this information in hand, should operational commanders acquire further information that could be used publically, it could be shared with INAC, thereby yielding broader benefit to other users.

In the context of this paper, the gathering of intelligence is not meant to be used to fight or defeat an “enemy,” but rather to assist in facilitating a mission and seeking a better understanding of the groups playing “host” to a CF presence.²³ While it is possible that conventional military operations could be conducted in the Arctic area (*i.e.*: force-on-force battles), this paper will focus on peace-time operations only. The amalgamation of

¹⁹ Department of National Defence, *B-GJ-005-200/FP-000 Joint Intelligence Doctrine*, 65.

²⁰ The domestic military operational headquarters, CANADA COMMAND, has issued specific direction on intelligence collection and the network of liaison required within the Canadian government, based on laws and societal sensitivities. Canada Command, *Canada Command Directives on Domestic Operations (CCDDO)* (Ottawa: Commander Canada Command, 2006), 6..

²¹ Examples can be RCMP for crime levels, Environment Canada for ice services, Canadian Coast Guard for maritime traffic patterns, Transport Canada for maritime pollution, Indian and Northern Affairs for legislation and provincial/territorial governments for governance advice. P. Whitney Lackenbauer provides a comprehensive list in P. Whitney Lackenbauer, "From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World," *Foreign Policy for Canada's Tomorrow*, no. 3 (July, 2009), 28, www.onlinecic.gc.ca/ap/in/irs/mp/mp-eng.asp (accessed January 22, 2011).

²² Inuit Relations Secretariat, "Inuit Nunangat Map," Minister of Indian and Northern Affairs, <http://www.ainc-inac.gc.ca/ap/in/irs/mp/mp-eng.asp> (accessed February 7, 2011).

²³ An opinion on the importance of understanding the “host nation domain” is presented by Emily Spencer. Emily Spencer, "Brains and Brawn: Cultural Intelligence (CQ) as the "Tool of Choice" in the Contemporary Operating Environment," *Canadian Military Journal* 11, no. 1 (Winter, 2010), 19, <http://www.journal.forces.gc.ca/vol11/no1/05-spencer-eng.asp> (accessed February 13, 2011).

all analysed intelligence results in a Situational Awareness (SA), with a high standard for detail to respond to commanders' questions or assist planners in finalizing orders.²⁴ In order to be clear about benign intelligence practices for use in the vicinity of Canada, the term "Situational Awareness" will be used.

To begin preparing for deploying AOPS, the remainder of this chapter will discuss some history, geography, economic development and environmental information that will consistently impact the planning of operations.

Dr. Robert Sutherland, a noted Canadian strategist of the Cold War era, noted that Canadian geography was a "strategic invariant" in how Canada shapes its foreign policies.²⁵ While noting that the Canadian Arctic had no "particular strategic value" from the stand-point of Cold War politics and strategy, he realized that Canada must nonetheless maintain presence in the area, if for no other reason than the inherent responsibility of a nation to defend all of its borders.²⁶ As the Cold War fades further into history and information continues to become declassified and publically available, it is now apparent that regular activity did occur in the North, in the form of drifting Russian ice stations conducting espionage and Royal Canadian Air Force (RCAF) aircraft making regular patrols.²⁷ The need to develop a viable capability to defend the North is therefore not a new concept, whether under the auspices of North Atlantic Treaty

²⁴ Department of National Defence, *B-GJ-005-200/FP-000 Joint Intelligence Doctrine*, 4 and Canada. Department of National Defence, *F-GJ-005-500/FP-000 Canadian Forces Joint Publication 5.0 - the Canadian Forces Operational Planning Process (OPP)*, 2nd ed. (Ottawa: Chief of the Defence Staff, 2008), 4-4.

²⁵ R. J. Sutherland, "Canada's Long-Term Strategic Situation," *International Journal* 17, no. 3 (Summer, 1962), 201, <http://www.heinonline.org/HOL/Page?collection=journals&handle=hein.journals/intj17&id=209#209> (accessed September 28, 2010).

²⁶ *Ibid.*, 209.

²⁷ Sean M. Maloney, "The Spies Who Went Out in the Cold," *Maclean's* 120, no. 42 (October 29, 2007), 34, <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=27253056&site=ehost-live> (accessed December 2, 2010).

Organization (NATO) or NORAD responsibilities during the Cold War,²⁸ or to respond to Government policies to bolster sovereignty claims.²⁹

Farley Mowat saw more romantic potential in Canada's northern wilderness. Lamenting that it seemed that only military men saw purpose in the Arctic; he eloquently pointed out that "the polar region is actually the centre of the Northern Hemisphere."³⁰ Seeking to shatter illusions as to the bleakness and hostility of its climate, he called attention to the severity of prairie blizzards or the storms of the Maritimes. Describing the lush variety of flora and fauna on the tundra and taiga, he makes the challenge that those who call this region "home" are just as "Canadian" as the rest of us.

With the end of the Cold War, multilateralism became possible in the Arctic, with more peaceful goals associated with it. Policies concerning the Arctic were able to shift from those recommended by Sutherland to those hoped for by Mowat. The Arctic Council, formed in 1996, is comprised of all Arctic nations, including representation from indigenous populations.³¹ The smaller number of member states has allowed for more efficient consensus-building on pressing issues, all based on peaceful cooperation. This concept was formally stated in the 2008 Ilulissat Declaration.³²

²⁸ Canada was viewed as having a responsibility to "defend the Northern flank of the Western World." In this report, it was observed that Canada lacked a robust ability to mobilize and employ troops, followed by recommendations to rectify the situation. William Scot Robertson, *Canada's Commitment to NATO's Northern Flank: The Northern Base Option* (Ottawa: Operational Research and Analysis Establishment (ORAE), [1983]) (accessed January 24, 2011).

²⁹ Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 40.

³⁰ Farley Mowat, *Canada North Now: The Great Betrayal* (Toronto: McClelland and Stewart Ltd, 1976), 18.

³¹ The term "Arctic Nations" corresponds to Canada, Denmark/Greenland, Finland, Iceland, Norway, Sweden, Russia and the United States. Finland, Iceland and Sweden are not considered Arctic coastal states. Arctic Council, "About Arctic Council," Arctic Council Secretariat, <http://arctic-council.org/article/about> (accessed January 23, 2011).

³² Arctic Council, "Ilulissat Declaration" (Ilulissat, Greenland, Arctic Council Secretariat, 29 May, 2008), http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf (accessed March 9, 2011).

The Arctic Council represents a constructive arena where Canada can exert influence and leadership in the Arctic region and cooperate in efforts such as governance, conservation, environmental protection and coordinating the safety of shipping.³³ The steps necessary to advance Canada's claims on disputed Arctic territory are not only understood but are being furthered in cooperation with other Arctic nations to maintain a non-adversarial posture.³⁴

All coastal Arctic nations, save Russia, are members of NATO.³⁵ This fact will prove useful to AOPS crews and planning organizations as this long-standing organization yields benefits which will help simplify tactical-level cooperation between most Arctic nations.³⁶ Despite Russia's non-NATO status, Arctic Council membership with Canada could lead to closer cooperation in the Arctic or provide a basis for developing training and cooperative exercises. Relatively smooth communication between Canadian and Russian fleets does have precedence. A holdover of the Cold War is an agreement to avoid incidents between warships beyond respective territorial seas. A

³³ Lassi Heinen and Heather N. Nicol, "The Importance of Northern Dimension Foreign Policies in the Geopolitics of the Circumpolar North," *Geopolitics* 12, no. 1 (Spring, 2007), 149, <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=23518987&site=ehost-live> (accessed December 18, 2010).

³⁴ A target date for Canada to submit data concerning its claims in the Arctic to be considered under the United Nations Convention on the Law of the Sea (UNCLOS) is 2013. To ensure a smooth process for arbitration, Arctic nations are cooperating in gathering the necessary data. Even the US, who has not ratified UNCLOS, sees this as a positive means to settle the area's disputes. Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 12. US-Canada cooperation to work towards settling disputed claims is described here: Department of Foreign Affairs and International Trade, "Canada's Extended Continental Shelf," Department of Foreign Affairs and International Trade (DFAIT), <http://international.gc.ca/continental/index.aspx> (accessed February 19, 2011).

³⁵ "NATO - Member Countries," North Atlantic Treaty Organization, http://www.nato.int/cps/en/natolive/nato_countries.htm (accessed January 29, 2011).

³⁶ NATO membership guarantees an ability to communicate securely, operate with common doctrine, manage logistics (especially fuel) and offers an international forum where Canada and these partner nations have had years of experience in dealing with resolving issues. "NATO - what is NATO?" North Atlantic Treaty Organization, http://www.nato.int/cps/en/SID-108378D0-3806D794/natolive/what_is_nato.htm (accessed January 29, 2011).

Canadian Annual Notice to Mariners, it is widely available to all merchant mariners and contains signal codes to assist in communicating intentions.³⁷ Thus while communication at the strategic and operational level between Arctic Nations may require specific gateways, tactical-level operations have existing agreements to leverage to facilitate safe navigation between professional mariners.

Canadians view the Arctic as a frontier to protect and nurture, where indigenous people are to be supported alongside economic development.³⁸ However, Canadian Arctic foreign policy has largely been reactive to international actors. The SS *Manhattan*, a modified oil tanker transited the Northwest Passage in 1969, which though understood by Ottawa to not represent a sovereignty challenge, nonetheless created negative reactions in the popular media.³⁹ A private Russian submarine conducted a public relations stunt in 2007 by planting a flag on the sea bed at the North Pole, prompting widespread reactions.⁴⁰ The flag-planting had no place in contemporary international law, and does not represent a threat to increased tensions in the area;⁴¹ it

³⁷ The Agreement between the Government of Canada and the Union of Soviet Socialist Republics (now understood to be Russia) concerning the Prevention of Incidents at Sea beyond the Territorial Sea is listed as Annual Notice to Mariners No. 42. Canadian Coast Guard, *Notices to Mariners 1 to 46*, Annual ed. (Ottawa: Department of Fisheries and Oceans (DFO), 2010)

³⁸ This viewpoint gained widespread acceptance in the 1960s. Charles Emmerson, *The Future History of the Arctic*, 1st ed. (New York: PublicAffairs, 2010), 62.

³⁹ Coates and others, *Arctic Front - Defending Canada in the Far North*, 95.

Michael Byers provides other examples as well in a history of Canada reacting to American vessels (including submarines) transiting Arctic waters with varying degrees of Canadian "permission". Michael Byers, *Who Owns the Arctic: Understanding Sovereignty Disputes in the North* (Vancouver: Douglas & McIntyre, 2009), 192.

⁴⁰ A Canadian viewpoint is seen in "Russia Plants Flag on Arctic Sea Floor," The National Post, <http://www.canada.com/nationalpost/news/story.html?id=f652fffc-946d-4e5b-b835-b6c635edc0ef&k=29481> (accessed January 23, 2011), with international coverage stating similar conclusions, as in Adrian Blomfield, "Russia Claims North Pole with Arctic Flag Stunt," The Telegraph, <http://www.telegraph.co.uk/news/worldnews/1559165/Russia-claims-North-Pole-with-Arctic-flag-stunt.html> (accessed January 23, 2011).

nonetheless prompted discussion on Canadian shortfalls in exercising influence in the Canadian Arctic region.⁴²

Whether through media-inspired rhetoric or patriotism, Canadians currently feel that the Arctic should be a significant foreign policy priority, with military resources suitably allocated.⁴³ Operational planners should thus expect CF actions to be scrutinized regularly (if not heavily) by the Canadian population and plans must be developed with the benefits and drawbacks associated with this fact. Furthermore, there will always be counterpoints to a military presence in the Arctic, based on issues that may be outside of the CF's direct control.⁴⁴

Conceptions (or misconceptions) Canadians hold regarding the Arctic are not unique. The populations of all Arctic nations have had imaginations captured, serving as a basis for nationalist pride. Russian Arctic explorers were held to the same level of veneration as heroes of the Great Patriotic War or later cosmonauts.⁴⁵ The Norwegian Fridtjof Nansen was a world-respected polymath who merged scientific insight with early heroic exploration of the Arctic.⁴⁶ American explorer Robert Peary is often credited with

⁴¹ Emerson, *The Future History of the Arctic*, 83 and Coates and others, *Arctic Front - Defending Canada in the Far North*, 163.

⁴² Mr. Struck's article from the US gives a good summary of Canadian weaknesses from an international viewpoint. Doug Struck, "Russia's Deep-Sea Flag-Planting at North Pole Strikes a Chill in Canada," Washington Post, <http://www.washingtonpost.com/wp-dyn/content/article/2007/08/06/AR2007080601369.html> (accessed January 23, 2011).

⁴³ Jill Mahoney, "Canadians Rank Arctic Sovereignty as Top Foreign-Policy Priority," The Globe and Mail, <http://m.theglobeandmail.com/news/politics/canadians-rank-arctic-sovereignty-as-top-foreign-policy-priority/article1881287/?service=mobile> (accessed January 24, 2011).

⁴⁴ Murray Brewster, "Tories Play to Misconceptions on Arctic with Jet-Thundering Photo-Op," The Globe and Mail, http://www.theglobeandmail.com/news/politics/?utm_medium=Feeds%3A%20RSS%2FAtom&utm_source=Politics (accessed March 8, 2011).

⁴⁵ Emerson, *The Future History of the Arctic*, 52.

⁴⁶ *Ibid.*, 9.

the first arrival to the North Pole.⁴⁷ Canadian veneration by a populace largely separated from its Arctic holdings is thus common among Arctic peers, and is a concept that could be exploited by the CF seeking to do good and receive positive coverage.

As an operating area, the term “Arctic” has varied boundaries associated with it. The Arctic Council uses a definition fashioned by its Arctic Monitoring and Assessment Programme (AMAP) using varying factors (see Figure 1). Canada uses the term “Canadian North” in official government documents that define the area as bounded by the northern borders between the provinces and the territories of Nunavut, Northwest Territories and the Yukon (Figure 2). The CF defines the North as the area encompassing the Joint Task Force North (JTFN) Area of Responsibility (AOR) (Figure 3). This area includes the Hudson’s Bay coastlines of Ontario and Manitoba in. For the purposes of this paper, the terms “Canadian Arctic” and “North” shall be used interchangeably, defined by the JTFN AOR, with one notable change. The area considered the Canadian Arctic in this paper will also include the area and coastline applicable to the Labrador Inuit Land Claims Agreement. This modification of the JTFN AOR to include the Labrador coast keeps with the government’s inclusion of Labrador Inuit in the Northern Strategy (with key place names included in Figure 2), and should be considered when planning CF deployments.⁴⁸

⁴⁷ Shelagh D. Grant, *Polar Imperative: A History of Arctic Sovereignty in North America* (Vancouver: Douglas & McIntyre, 2010), 211.

⁴⁸ Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 30.

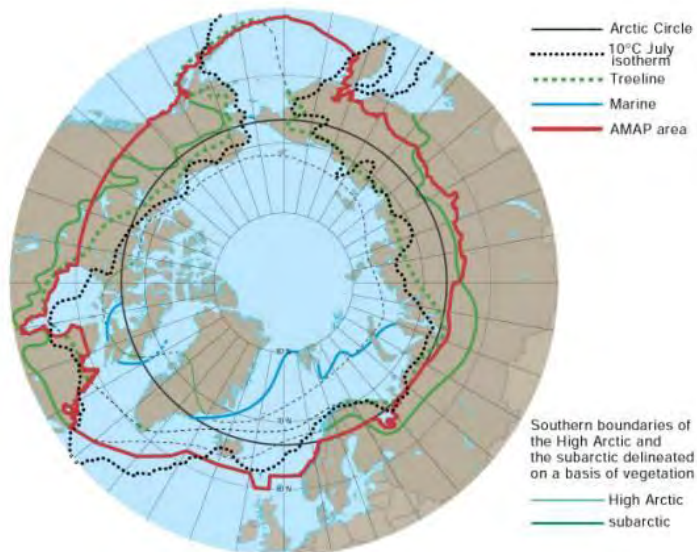


Figure 1 - Physical-Geographical characteristics associated with the Arctic region
 Source: Arctic Monitoring and Assessment Programme, “Geographical Coverage,” <http://www.amap.no/>; Internet, accessed January 23, 2011.

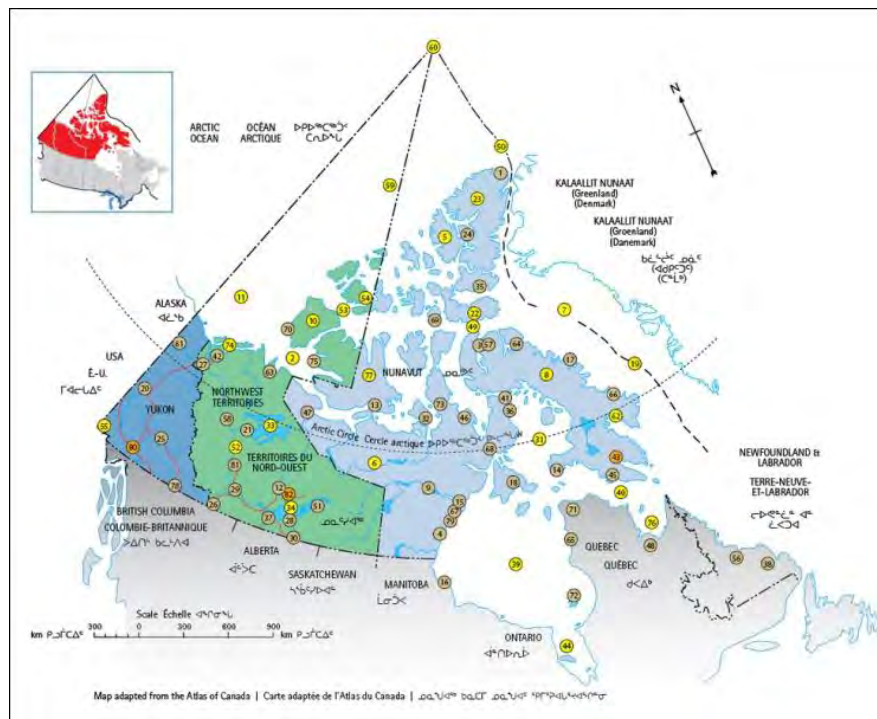


Figure 2 - Canada's North
 Source: Ministry of Northern Affairs, *Canada's Northern Strategy*, 7.



Figure 3 - Canadian Forces Joint Task Force North Area of Responsibility
 Source: Burse, *Canada Command Employment and Support Concept for the North*, 17.

The Canadian Arctic covers roughly 40 percent of Canada's overall land mass, with the Arctic archipelago and continental coastline representing 75% of Canada's total coastline.⁴⁹ Despite the enormity of the area, it is the least inhabited place in North America, with a population density of less than 0.03, spread across fifty-two communities, a third of which has populations fewer than 500 people.⁵⁰

The Arctic area is facing significant stress as a result of climate change. Warming temperatures and receding levels of sea ice coverage and thickness are widespread in scientific data.⁵¹ These factors contribute to or exacerbate other events that further shape

⁴⁹ Department of Fisheries and Oceans, "Arctic Ocean Management," Department of Fisheries and Oceans (DFO), <http://www.dfo-mpo.gc.ca/regions/central/oceans/index-eng.htm> (accessed January 26, 2011).

⁵⁰ The entire country of India could fit in what is defined as the "Canadian North." Statistics Canada, "Land and Freshwater Area, by Province and Territory," Statistics Canada, <http://www40.statcan.gc.ca/101/cst01/phys01-eng.htm> (accessed 1/25/2011, 2011) and Statistics Canada, "Population and Dwelling Counts, for Canada, Provinces and Territories, 2006 and 2001 Censuses - 100% Data," Statistics Canada, <http://www12.statcan.ca/english/census06/data/popdwell/Table.cfm?T=101> (accessed 1/25/2011, 2011).

the Arctic environment. As warming trends continue, the tree line is moving northward, bringing more invasive alien species along with it. As the bio-diversity of the Arctic is affected, so are Inuit subsistence activities, affecting human lifestyles (more on this topic in Chapter 2). Permafrost is now thawing, which will have additional effects on subsistence activities, as well as on infrastructure.⁵² This warming trend is expected to continue globally and will likely be more pronounced at the poles due to planetary atmospheric cycles. This is expected to produce more noticeable effects (and changes) to local populations and the environment compared to the rest of Canada.

The prevalence of mineral resources in the Arctic is well known. In 2008, a US Geological Survey report claimed that up to twenty percent of the world's undiscovered oil lay in the Arctic region.⁵³ This has resulted in renewed interest in further economic development. Presently operating diamond mines produce sufficient quality and quantity to make Canada the third largest diamond producer by value.⁵⁴ Mining, regardless of type, has resulted in significant employment and economic opportunities for nearby communities.⁵⁵ Empowered by government policy to ensure aspects of Inuit control and

⁵¹ Arctic temperatures are warmer than the past 400 years. Annika E. Nilsson and Henry P. Huntington, *Arctic Pollution 2009* (Oslo: Arctic Monitoring and Assessment Programme, 2009), 2.

⁵² F. Stuart Chapin III and others, "Polar Systems," in *Ecosystems and Human Well-being: Current State and Trends, Volume 1*, eds. Rashid Hassan, Robert Scholes and Neville Ash, Vol. 1 (London: Island Press, 2005), 719, <http://maweb.org/en/Condition.aspx> (accessed December 18, 2010) and Henry P. Huntington, *Update on Selected Climate Issues of Concern: Observations, Short-Lived Climate Forcers, Arctic Carbon Cycle, and Predictive Capability* (Oslo: Arctic Monitoring and Assessment Programme, [2009]), <http://amap.no/documents/index.cfm?action=getfile&dirsub=&filename=Climate%5FUpdate%5F2009.pdf&sort=default> (accessed January 24, 2011).

⁵³ United States Geological Survey, *Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle* (Menlo Park, CA: U.S. Department of the Interior, [2008]), <http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf> (accessed October 24, 2010).

⁵⁴ Natural Resources Canada, "Canada: A Diamond-Producing Nation," Natural Resources Canada, <http://www.nrcan.gc.ca/smm-mms/busi-indu/dpn-npd-eng.htm> (accessed March 11, 2011).

⁵⁵ Natural Resources Canada, "Sustainable Development of Natural Resources in Canada's North: An NRCan Perspective" (CFC Arctic Symposium, Toronto, ON, Natural Resources Canada, October 19, 2010) (accessed October 20, 2010) and Rio Tinto Group, "The Diavik Diamond Mine - Community Investment,"

benefit, this has resulted in clear requirements for companies to deal with indigenous peoples' concerns over environmental, royalty and economic issues.⁵⁶ Should climate change or other issues accelerate this process, it may be a significant area for CF consideration when planning AOPS missions. Organized and drug crime may be attracted to expanding areas of mineral exploitation, as seen in southern instances.⁵⁷ Increased vessel traffic servicing mine or oil field offload points could create environmental or navigational hazards if affected by severe weather, poorly charted areas or human error. Significant protests by the indigenous population (or rash retaliation by a company) could require observation and possible interference. Finally, companies conducting exploratory or mining activities in the maritime domain could breach Canadian maritime regulations and require interdiction in cooperation with other government agencies.

The transnational aspect of the environmental impact of mineral development may require CF attention beyond Canadian maritime boundaries. Greenland is seeking successful mineral development as a basis for future independence from Denmark, but may operate under different (or incompatible) business practices compared with Canada.

Rio Tinto Group, http://www.diavik.ca/ENG/ourapproach/community_investment.asp (accessed March 11, 2011).

⁵⁶ A subagency of INAC, CanNor has been established to assist in northern economic development. Inuit organizations are now regularly engaged in deciding the directions of mining and drilling projects. Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 14, Editorial, "Arctic Resources: Now it's their Turn," *The Economist*, <http://www.economist.com/node/18277141> (accessed March 9, 2011) and "Inuit Leaders Tackle Resource Development Debate," Canadian Broadcasting Corporation, <http://www.cbc.ca/news/canada/north/story/2011/02/23/inuit-council-resource-summit.html> (accessed March 11, 2011).

⁵⁷ Criminal Intelligence Service Canada, "Organized Crime and the Diamond Industry," in *2004 Annual Report on Organized Crime in Canada* (Ottawa: Criminal Intelligence Service Canada, 2004), http://www.cisc.gc.ca/annual_reports/annual_report_2004/diamond_2004_e.html (accessed March 11, 2011).

Greenland independence in itself could yield previously unforeseen areas of consideration for Canadian foreign policy. Also, cooperation may be needed (or sought) to ensure a common practice in environmental stewardship is established. This could present operational planners with an opportunity to regularly interact with Danish/Greenland forces and agencies to build agreements and procedures for regular cooperation.⁵⁸

Arctic communities and economic projects are not the sole source of pollution in the North. The Arctic is in constant receipt of pollutants produced worldwide, transported via air streams or sea currents.⁵⁹ The contamination of flora and fauna has resulted in the spread of harmful pollutants throughout the northern food chain. This has greatly affected cultural eating habits, turning communities to relying on southern produced foodstuffs for regular consumption (the follow-on effects of this will be discussed later in the paper). An AOPS vessel seeking to resupply will not likely be able to embark fresh rations. Furthermore, any foods or goods purchased cannot be in such quantity that it adversely affects the stockpile available to the community.

Another pollutant threatening the area is radiation, both contaminant and natural. Fallout carried by winds originating from global nuclear tests beginning over half a century ago to the Chernobyl incident in 1986 have been detected in the Arctic. While predominant in the Eurasian landmass (and gradually falling annually), radioactive substances have been detected in ocean water in the vicinity of Greenland, and Canadian

⁵⁸ "Greenland, Nunavut Want Arctic Protection," Canadian Broadcasting Corporation, <http://www.cbc.ca/canada/north/story/2011/02/03/nunavut-greenland-arctic-waters.html#ixzz1CzuFmAjp> (accessed February 5, 2011).

⁵⁹ Nilsson and Huntington, *Arctic Pollution 2009*, 2 and Chapin III and others, *Polar Systems*, 721.

Arctic soil.⁶⁰ While the ozone hole is extremely active in the area of the South Pole, diminished ozone levels have been observed in the Arctic north, bringing higher levels of UV-B rays, particularly recently.⁶¹ UV-B contamination can adversely affect animal and human populations, resulting in higher risks of skin cancer and immune system suppression.⁶²

The Canadian Arctic has already been defined as a CF theatre of operations.⁶³ In order to begin planning for regular operations to the Canadian Arctic, the CF must establish SA for commanders at all levels to begin planning for success. Leveraging the persistent and industrious work of others who make their findings available, this can be achieved well in advance of the first AOPS sailing. When these vessels begin conducting their missions in the North, they will find that the region is vaster than the East or West coastlines and operating areas, with differing interpretations as to its exact identity. The nuances of establishing Arctic boundaries will have to be understood when communicating with other Arctic countries, and organizations operating there. The Arctic is a subject of interest outside of Canada's borders, meaning other groups operating in the Arctic Ocean are likely to be just as interested and passionate about issues of sovereignty and climate change as Canadians profess to be. The Arctic is undergoing significant transformation due to the effects of climate change, and possesses widespread risks to health not commonly associated with other areas of Canada. Thus

⁶⁰ Nilsson and Huntington, *Arctic Pollution 2009*, 65.

⁶¹ Chapin III and others, *Polar Systems*, 731 and Adrian Morrow, "Ozone Layer Depleted by Record 40 Per Cent Over Arctic," *The Globe and Mail*, <http://www.theglobeandmail.com/news/world/ozone-layer-faces-record-loss-over-arctic/article1971038/?cmpid=nl-news1> (accessed April 7, 2011).

⁶² Chapin III and others, *Polar Systems*, 737.

⁶³ Canada. Dept. of National Defence, *Canada First Defence Strategy.*, 3 and Maritime Command Strategic Communications, *Canadian Navy Strategic Communications Handbook 2008/2009* (Ottawa: Assistant Deputy Minister (Public Affairs), 2008), 14, http://navy.mil.ca/repository/dgmsm-dggsm/dmsec/strat_com_pub_ENG.pdf (accessed January 19, 2011).

AOPS operations may incrementally change based on these effects, and may even have to adapt different operating procedures compared to the larger Canadian Navy to ensure that the health and welfare of crews is maintained.

CHAPTER 2 – ARCTIC COMMUNITIES

Reflecting Canadian values is seen as the major “centre of gravity”⁶⁴ for the CF. It is expected that these values will continue to be defended by the CF, which by extension include the very people who hold these values.⁶⁵ For the Canadian North, the CF regional centre of gravity is its “positive relationship with the aboriginal peoples, all levels of government in the three territories and non-governmental agencies operating in the same region.”⁶⁶ Through all Canadian missions abroad and domestic, providing protection or support to the local population has been a priority. By connecting and maintaining a close cooperation with the inhabitants of a given area, whether it be recovering from a natural disaster or finding support in a significant conflict, the CF will be better positioned to successfully complete the given mission. This will remain the case in Arctic operations.

A significant function of Canadian naval operations is to act in support of Canadian foreign policy, including providing a platform in a foreign port to act as sovereign soil for

⁶⁴ The centre of gravity is a term used to describe “the characteristics, capabilities or localities from which a nation or military force derives its freedom of action, physical strength of will to fight.” If a centre of gravity is “destroyed,” it will result in the failure of the mission. Defined in Canada. Department of National Defence, *B-GJ-005-300/FP-001 Canadian Forces Joint Publication 3.0 - Operations* (Ottawa: Chief of the Defence Staff, 2010), GL-2.

⁶⁵ Canadian Forces Leadership Institute, *Duty with Honour : The Profession of Arms in Canada*, 25 and Chief of the Defence Staff, *Defence Strategy 2020* (Ottawa: Department of National Defence, 1999), 3.

⁶⁶ Colonel Kevin McLeod, quoted in P. Whitney Lackenbauer, "The Canadian Rangers: A "Postmodern" Militia that Works," *Canadian Military Journal* 6, no. 4 (Winter, 2006), 49, <http://www.journal.forces.gc.ca/vo6/no4/doc/north-nord-03-eng.pdf> (accessed February 13, 2011).

peaceful negotiations or civil-military cooperation.⁶⁷ It stands to reason that in following the Government's Northern Strategy to promote social and economic development in northern communities, naval diplomatic skill sets could be adapted to further government and CF goals in remote areas of Canada itself.⁶⁸

In order to positively influence an audience with a culture foreign to one's own, research and preparation are required, which will contribute to regional SA. It has been recognized that initiatives to bolster "Arctic sovereignty" should fully include the permanent inhabitants of the region.⁶⁹ In order to further establish situational awareness on the sociological, medical and political conditions in the Arctic, a comprehensive understanding of the inhabitants is needed. The differences between Arctic culture with that of greater southern Canada (or "Qallunaat", as we are known to the Inuit) cannot be underestimated.

In order to foster and maintain a long term relationship with this different culture, the CF, in cooperation with other government agencies, will need to gradually develop Cultural Intelligence (CQ) about Arctic cultures.⁷⁰ As taught in corporate leadership, leaders must effectively interact with people who have different values, norms and

⁶⁷ Directorate of Maritime Strategy, *LEADMARK: The Navy's Strategy for 2020* (Ottawa: Maritime Command, 2001), 34, http://www.navy.dnd.ca/leadmark/pdf/ENG_LEADMARK_FULL_72DPI.PDF (accessed February 05, 2011).

⁶⁸ Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 14 and Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 8.

⁶⁹ Coates and others, *Arctic Front - Defending Canada in the Far North*, 178.

⁷⁰ An argument can be made that Cultural Intelligence can pertain to understanding and overcoming the friction points between other government agencies and the CF as well. However, this area shall be considered easily overcome based on professional principles whereas dealing with fundamentally different cultures requires more emphasis on mental preparation and tailoring of behaviour to reach a desired outcome.

perceptions of reality.⁷¹ This will help ensure that a newly-introduced CF presence does not diminish the efforts and successes already accomplished by other agencies.

Cultural competence with the Inuit will not be achieved following an established course prior to a deployment. With an abundance of literature to draw from, methods for improving the CQ of CF personnel, and as an extension, their external adaptability as a leadership skill, are within easy grasp. Through such basic means as adapting leadership styles and focusing on mutual respect, the CF must also be prepared to embrace mistakes and not judge successes simply from the outcomes of meetings.⁷² CF cultural competence will develop over years of multiple personalities and agencies dealing with and learning from the Inuit, feeding back into an effective lessons learned framework to better prepare future deployments. Numerous models have been developed to identify aspects of cultures, which can assist operational planning and preparations for training and executing an event.⁷³ When examining where friction points may occur, Daniel Levi noted that “diversity,” when defined as differences from one’s own culture, can be characterised by demographics, psychological aspects and organizational structure of the culture being examined.

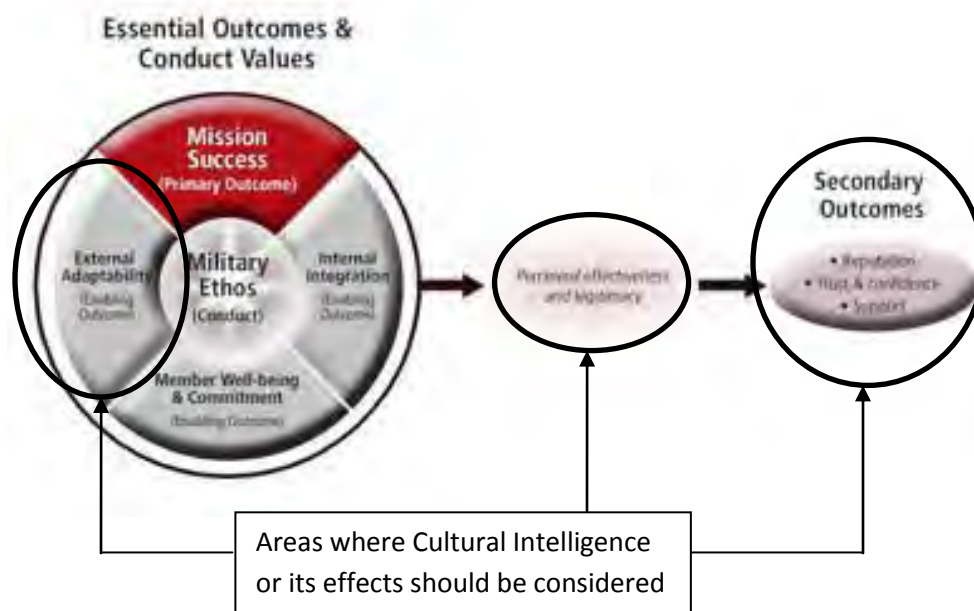
⁷¹ Victor J. Friedman and Ariane Berthoin Antal, "Negotiating Reality: A Theory of Action Approach to Intercultural Competence," *Management Learning* 36, no. 1 (March, 2005), 69, <http://mlq.sagepub.com/content/36/1/69> (accessed January 29, 2011).

⁷² David Livermore, "You Lead Across a Multi-Cultural Terrain: Why CQ?" in *Leading with Cultural Intelligence: The New Secret to Success* (New York: American Management Association, 2010), 17 and Friedman and Antal, *Negotiating Reality: A Theory of Action Approach to Intercultural Competence*, 75.

⁷³ This paper does not intend to provide options for in depth training for developing CF cultural competence, only to call attention that in order to fully succeed at external adaptability, a framework must be developed. Previous work by corporate leadership writings and past experience from Canadian government agencies should serve as a starting point. Anne-Marie Soderberg and Nigel Holden, "Rethinking Cross Cultural Management in a Globalizing Business World," *International Journal of Cross Cultural Management* 2, no. 1 (2002), 105 (accessed September 14, 2010) , Livermore, *You Lead Across a Multi-Cultural Terrain: Why CQ?*, 3 and Mary L. Connerly, "Cultural Frameworks and their Importance for Leaders," in *Leadership in a Diverse and Multicultural Environment: Developing Awareness, Knowledge, and Skills* (Thousand Oaks, CA: Sage Publications, 2005), 40 (accessed January 29, 2011).

Cultural Intelligence is compatible with the Values-based leadership model currently used by the CF. Under this model, truly effective mission outcomes are a result of more factors than simply focusing on success (see Figure 4).⁷⁴ A critical aspect of the CF effectiveness framework is External Adaptability, a key area to focus on when required to deal with the foreign aspects of Arctic culture. In this way, External Adaptability can be seen as a natural extension of CQ.⁷⁵

The CF leadership model also recognizes that in conducting any mission, Secondary Outcomes must be considered. These outcomes could be establishing and maintaining a positive reputation, building trust and confidence (not just in the CF but in the government), and fostering support of communities for initiatives being taken to protect and improve their welfare. In any mission to the Arctic, these Secondary Outcomes should be considered alongside defining a desired endstate.



⁷⁴ "The ends justify the means" is not a suitable motto for conducting Canadian operations in the established military ethos. Canada. Dept. of National Defence and Canadian Forces Leadership Institute, *Leadership in the Canadian Forces : Conceptual Foundations* (Ottawa, Ont.: Canadian Forces Leadership Institute, 2005), 19.

⁷⁵ *Ibid.*, 21.

Figure 4 - Canadian Forces effectiveness framework highlighting Cultural Intelligence
 Source: DND, *Conceptual Foundations*, 19.

Cultural Intelligence is being embraced in contemporary international operations, where influencing foreign cultures has been determined to be central to achieving mission goals. Canada's extended presence in Afghanistan has resulted in a better appreciation of the need to seek more efficient means of interaction and negotiation with the diverse local population. This has come from understanding that an "intended message" and the "received message" can be two different things.⁷⁶ Operation SALON saw the CF assisting provincial authorities at Oka, Quebec and resulted in a favourable outcome. Still, it was later determined that a knowledge gap existed in understanding the decision-making and governance structure of the Mohawk tribe.⁷⁷ Had the CF (or Quebec government) better understood women's roles in Mohawk tribal life, the situation might have been defused sooner.

Seeking better ways to incorporate cultural awareness into a commander's SA is not limited to the Canadian experience. The United States has created the "Human Terrain System," which leverages academic and scientific expertise to better translate cultural issues into military operation and training, utilizing both research and active field teams.⁷⁸ Employing civilian experts in the vicinity of operations could be adapted to AOPS operations. Experts in many anthropological and historical areas exist in OGDs

⁷⁶ Spencer, *Brains and Brawn: Cultural Intelligence (CQ) as the "Tool of Choice" in the Contemporary Operating Environment*, 16.

⁷⁷ Denise Kerr and Karen D. Davis, "Appendix C - Reflecting on Oka: The Legacy of Mission Success," in *Cultural Intelligence & Leadership: An Introduction for Canadian Forces Leaders*, ed. Karen D. Davis (Kingston: Canadian Defence Academy Press, 2009), 125, <http://www.cda-acd.forces.gc.ca/cfli-ilfc/doc/CulturalIntelligence-eng.pdf> (accessed December 18, 2010).

⁷⁸ United States Army, "Human Terrain System (HTS) Home," United States Army, <http://humanterrainsystem.army.mil/> (accessed February 19, 2011).

that have compatible interests in the North.⁷⁹ Embarking dedicated experts to assist AOPS command teams who could concurrently contribute to another agency's goals may be feasible and a good way to progress relationships.

Language is a vital skill that can help bridge barriers in negotiating an unfamiliar or dissimilar culture. Being functional in an audience's language can keep tensions low and improve patience between two parties. As will be discussed shortly, the Inuit language is fundamentally different from English (or French) and in prevalent use.⁸⁰ CF-trained translators are generally focused on communication-based intelligence, and will not be available for AOPS taskings, nor likely effective in Inuktitut.⁸¹ Canadian fluency in English and French assisted humanitarian efforts in Haiti, and efforts in Afghanistan are supported by contracted translators.⁸² While the Canadian Rangers offer language capability, their employment within CF operations has clear restrictions and should not be expected to become the panacea to this problem.⁸³ Experience in Afghanistan has created a program for employing security-screened translation contractors, this program could be expanded to include Arctic operations. Outside of these possibilities, translation assistance will only come by luck of having an AOPS crewmember fluent in a different language. An encouraging Afghanistan example is a Master Corporal self-educated in Pashto who was found to be more effective. This enabled smoother interactions at the

⁷⁹ As an example, Shelagh Grant observed that anthropologists have had higher success in writing accounts of Inuit history than historians. Grant, *Inuit History in the Next Millennium: Challenges and Rewards*, 91.

⁸⁰ Statistics Canada, "Aboriginal Population Profile from the 2006 Census, Statistics Canada - Census Subdivision," Statistics Canada, <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-594/details/Page.cfm?Lang=E&Geo1=CSD&Code1=6204003&Geo2=PR&Code2=62&Data=Count&SearchText=Iqaluit&SearchType=Begins&SearchPR=62&B1=All&Custom=> (accessed January 17, 2011).

⁸¹ Canada. Department of National Defence, *A Career as a Non-Commissioned Member - Communicator Research Operator* (Ottawa: Canadian Forces, 2010), 1-2.

⁸² Ben Gilbert, "Voice of America in Afghanistan," GlobalPost, <http://www.globalpost.com/dispatch/afghanistan/100225/afghanistan-interpreters> (accessed March 12, 2011).

⁸³ Lackenbauer, *The Canadian Rangers: A "Postmodern" Militia that Works*, 56.

tactical level and empowered him (and by extension, his section) to be an efficient face of Canadian good will.⁸⁴

Initially, no pilot project for developing CQ will be perfect, but the absence of formalized training or relying on an oversimplified “Powerpoint presentation” on Inuit culture will result in inconsistent dealings with northern communities. Effort and patience will be required, with frequent turnovers in personnel and the availability of training opportunities playing against these efforts. Nonetheless, the CF has already developed sufficient experience elsewhere to see the utility and necessity of developing CQ for an indigenous culture, to better execute its assigned missions.

A second-order result of developing solid CQ in CF members will be the mitigation of what has been defined as “cultural stress.” Prolonged or regular exposure to an unfamiliar culture can cause basic frustrations in some but has been shown to also manifest as operational stress in others.⁸⁵ While the AOPS is not intended to overcome a military threat,⁸⁶ the isolation of Arctic missions, the length of time spent from home surroundings and families, the low tempo and unfamiliar aspects of missions could all contribute to operational stress, alongside the aforementioned cultural stress.⁸⁷ If left unchecked or unrecognized, this stress could lead to unforeseen, negative actions by CF members that would not only bring negative visibility to the CF, but also likely to the

⁸⁴ Ryan Cormier, "Crossing the Language Divide in Afghanistan," National Post, <http://www.nationalpost.com/news/world/somalia/4276051/story.html> (accessed February 15, 2011).

⁸⁵ The term “operational stress” can result in symptoms associated with Post Traumatic Stress Disorder (PTSD). Jaz Azari, Christopher Dandeker and Neil Greenberg, "Cultural Stress: How Interactions with and among Foreign Populations Affect Military Personnel," *Armed Forces & Society* 36, no. 4 (July, 2010), 586 (accessed September 14, 2010).

⁸⁶ Specific missions for the AOPS shall be discussed in Chapter 3. Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 6.

⁸⁷ Azari, Dandeker and Greenberg, *Cultural Stress: How Interactions with and among Foreign Populations Affect Military Personnel*, 589.

entire Government, both in the community where it occurs and the country at large. Therefore programs to develop CQ cannot be limited to leaders or officers, but to all CF personnel involved in Arctic operations.

Recognizing CQ as fully compatible with CF leadership doctrine, specifically External Adaptability, is an initial avenue to better prepare CF personnel for Arctic operations. The means to adequately convey the intentions, plans and outcomes of these operations to audiences (be they Arctic communities, the greater Canadian public or even internal CF personnel) is via Public Affairs (PA) plans. PA policy already exists to promote a greater understanding and awareness of CF activities to Canadian society.⁸⁸ PA activities are expected to coordinate with government departments active in an operational area, to best leverage success, reduce duplication of effort and minimize inconveniencing the subject of its coverage.⁸⁹

Effective CF PA must be driven by Command, and follow a coordinated approach through all stages of planning and execution.⁹⁰ It is CF policy to maintain an open, transparent approach to foster awareness and remain accountable to Canadians in the means employed on operations.⁹¹ The generic endstate of PA is meant to nurture a strong relationship with whatever audience is targeted, and in this case, adequately prepare Arctic communities for CF operations and act in sync with OGDs and their initiatives.

⁸⁸ Assistant Deputy Minister (Public Affairs), *Defence Administrative Order and Directive (DAOD) 2008-0 - Public Affairs Policy* (Ottawa: Assistant Deputy Minister (Finance and Corporate Services), 1998), 2.

⁸⁹ Strategic Joint Staff Public Affairs, *B-GJ-005-361/FP-000 Joint Public Affairs* (Ottawa: Chief of the Defence Staff, 2007), 1.

⁹⁰ The term “Command-driven” or “Command-led” points to a senior Commander giving a specific statement of intent prior to detailed planning occurring for any activity. While it is understood that staffs will partake in the bulk of preparing for an activity, any task that is designed to be “Command-driven” must be given adequate, periodic attention by the Commander to ensure that his/her desired outcome is being shaped.

⁹¹ *Ibid.*, 4.

Most CF units and headquarters have indigenous PA resources and plans. This experience and expertise must nonetheless continue to evolve to meet the realities of new operating environments and those who occupy it. It is not enough for the Navy to emphasize its “credibility as a national institution,” it must evolve its plans to emphasize that its missions coincide with those of OGDs.⁹² Maintaining solid relationships with OGDs is a vital Secondary Outcome (see Figure 4) and cannot be damaged to facilitate an easier means for mission success. Therefore PA will be crucial to ensure that adequate acknowledgement is provided for those involved in any CF effort taken in the Arctic and that one agency does not eclipse another.

PA activities are often resource-driven, meaning these activities must be conducted for the best value for effort (and money) expended.⁹³ PA investments must generate the best outcomes for all involved; therefore whenever the CF partners with another government agency, synergy and savings will be found in synchronizing PA efforts. This will improve relationships and develop a better understanding of how the CF and other agencies can best work together. Irrespective of who is assigned the task of conducting the PA plan, adequate research must be conducted. This will not only help ensure effectiveness, but properly prepare follow-on analysis to determine the degree of effectiveness.⁹⁴ Proper research will require a degree of SA to draw upon. Failure to do so may result in detracting from the overall strategic intent of an operation or exercise

⁹² Maritime Command Strategic Communications, *Canadian Navy Strategic Communications Handbook 2008/2009*, 7.

⁹³ Director General of Public Affairs, *Defence Administrative Order and Directive (DAOD) 2008-5 - Public Affairs Planning and Program Delivery* (Ottawa: Assistant Deputy Minister (Finance and Corporate Services), 1998), 3.

⁹⁴ *Ibid.*, 11 and Maritime Command Public Affairs, *Maritime Command Order (MARCORD) 19-06 Maritime Command Public Affairs*, Vol. 1 (Ottawa: Chief of the Maritime Staff, 2007), 1.

and causing setbacks for relationships between local communities and the entire government framework. There have already been examples of this to learn from.⁹⁵

THE INUIT CULTURE

Having defined the Arctic as a “theatre of operations,” it now follows that the inhabitants of this theatre are the hosts to which Canadian Forces personnel must interact with. As already discussed, CF operations in the Arctic will not be focused on conventional warfare-related tasks, but in domestic security operations, such as Search and Rescue, responding to natural disasters or contributing to improving domestic situations alongside OGDs. These operations will consistently involve an aspect of “diplomacy” or communicating with the local population on behalf of the larger CF and federal government.⁹⁶ The necessity for understanding the nuances of a foreign culture to better achieve this manner of communication has already been discussed, and the Inuit culture represents a culture very different from other southern archetypes. Unlike the Caucasian majority of Canadians, the Inuit are nonetheless Canadian and a domestic audience and CF leaders have a responsibility to ensure that effective communication is employed to afford transparency of intent and the requirement for military presence.⁹⁷ A Canadian warship commanding officer proceeding ashore in a northern community would do well to understand the characteristics of the population with which his crew will interact.

⁹⁵ "Operation Narwhal Soldiers Not Welcome in Fort Simpson: Chief," Canadian Broadcasting Corporation, <http://www.cbc.ca/canada/north/story/2007/04/16/nwt-narwhal.html> (accessed February 13, 2011).

⁹⁶ Directorate of Maritime Strategy, *LEADMARK: The Navy's Strategy for 2020*, 40.

⁹⁷ Canadian Forces Leadership Institute, *Duty with Honour : The Profession of Arms in Canada*, 45.

By understanding the history of Inuit culture, CF personnel will be able to better understand mythologies, beliefs, taboos and family dynamics. By understanding the cycles of activity and stresses being placed on this culture, CF planners will be better able to orient CF participation in community involvement and avoid unforeseen second order consequences to planned missions. When providing humanitarian assistance in Haiti in 2010 (Operation HESTIA), it was necessary to understand that the scale of devastation meant that every Haitian would have been familiar with someone lost in the earthquake. This need is the same in the North, where every Inuit has likely been affected by knowing someone who has committed suicide, an epidemic not as widespread in the rest of Canada.⁹⁸

Canada is the only country whose Arctic population has a significant majority of indigenous people. The Inuit culture is not specifically confined to national borders (as seen in Figure 5), sharing similarities with other Arctic inhabitants as populations spread and societies evolved. The Inuit are specifically recognized in the Canadian Constitution (and as a result, the Charter of Human Rights and Freedoms) as having a special status in Canadian society. This protects traditional activities and previously understood rights within their society.⁹⁹ Thus present Government policies to develop regions, maintain (or improve) the environment and contribute to human well-being are, and will continue to be, structured around aboriginal (in this case, Inuit) requirements and input. The CF will need to suitably understand the culture, stress points and extant programs in place

⁹⁸ Sandy Isaacs and others, "Suicide in the Northwest Territories: A Descriptive Review," *Chronic Diseases in Canada* 19, no. 4 (2000), 1, http://phac.aspc.gc.ca/publicat/cdic-mcc/19-4/c_e.html (accessed January 17, 2011).

⁹⁹ Section 25 of the Charter of Rights and Freedoms speaks directly to Aboriginal rights (which the Inuit are recognized to be a part of). *The Constitution Act, 1982*, (1982): 53, http://laws.justice.gc.ca/eng/Const/9.html#anchors:7-bo-ga:l_VII (accessed January 31, 2011). Section 35 of the Constitution Act protects treaty rights and allows for land claims. *Ibid.*, 55.

(whether Federal, territorial or Inuit self-government based or from non-profit organizations) to adequately contribute to and not detract from progress being made.

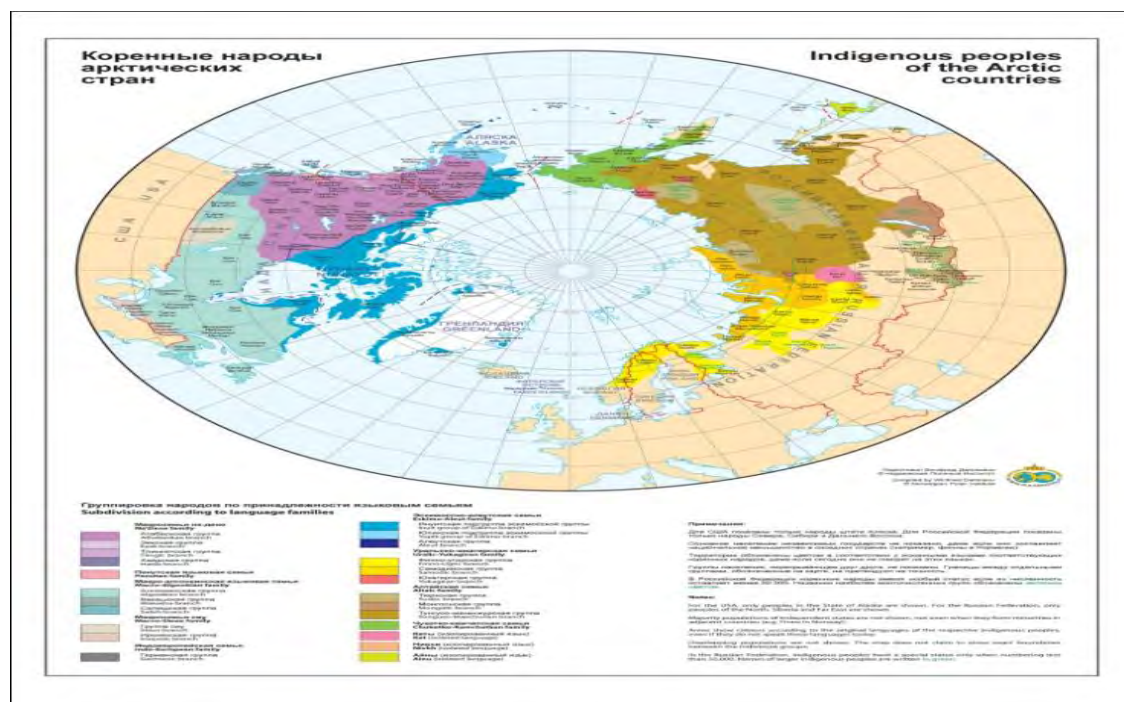


Figure 5 - Arctic Indigenous Peoples

Source: Dallman, *Indigenous Peoples of the Arctic Countries*, <http://www.polarconservation.org/education/arctic-peoples/indigenous-peoples2019-organisations/map-of-arctic-indigenous-peoples/view>; Internet, accessed February 5, 2011.

The 2006 Canadian Census describes the Inuit representing 4% of the Canadian Aboriginal population (approximately 50 500). One of the youngest demographics of Canada, the Inuit median age is 22 years (compared to 40 years among non-Aboriginal Canadians). Life expectancy is 63 years for men and 72 years for women, about ten years less than the average Canadian population for each.¹⁰⁰ Populations are expected to

¹⁰⁰ Statistics Canada, *Aboriginal Peoples in Canada in 2006: Inuit, Métis and First Nations, 2006 Census: Inuit: Inuit Population: Young and Growing* (Ottawa: Statistics Canada, [2009]),

increase steadily above the Canadian norm, which will add pressure to communities, governments and budgets in combating the variety of social issues summarized in this chapter.¹⁰¹

The Inuit homeland or “Inuit Nunaat” is comprised of four regions, based on separate land claims and representing almost one third of Canada’s land mass (Figure 6).¹⁰² While the Inuit people share culture and traditions, each region has some distinctiveness. Fifty-two communities dot this vast landscape, including a growing third of the population that represents an urban version, having in excess of 1000 people.¹⁰³ The four regions all practice a form of self-government established through Land Claim Agreements and protected under the Constitution.

<http://www12.statcan.ca/census-recensement/2006/as-sa/97-558/pdf/97-558-XIE2006001.pdf> (accessed January 24, 2011).

¹⁰¹ Statistics Canada, *Population and Dwelling Counts, for Canada, Provinces and Territories, 2006 and 2001 Censuses - 100% Data*, 1. Nunavut government statistics forecast these trends to continue. Ronald McMahon, *Nunavut Population Projections* (Iqaluit: Nunavut Bureau of Statistics,[2010]), <http://www.eco.gov.yk.ca/stats/pdf/nunavut-population-circumpolarpresentation.pdf> (accessed February 06, 2011).

¹⁰² Statistics Canada, *Aboriginal Peoples in Canada in 2006: Inuit, Métis and First Nations, 2006 Census: Inuit: Inuit Population: Young and Growing*, 21.

¹⁰³ For example, Iqaluit, capital of Nunavut, saw an Inuit population increase of 18%, compared to an overall population increase of 10% for the territory. *Ibid.*, 22.

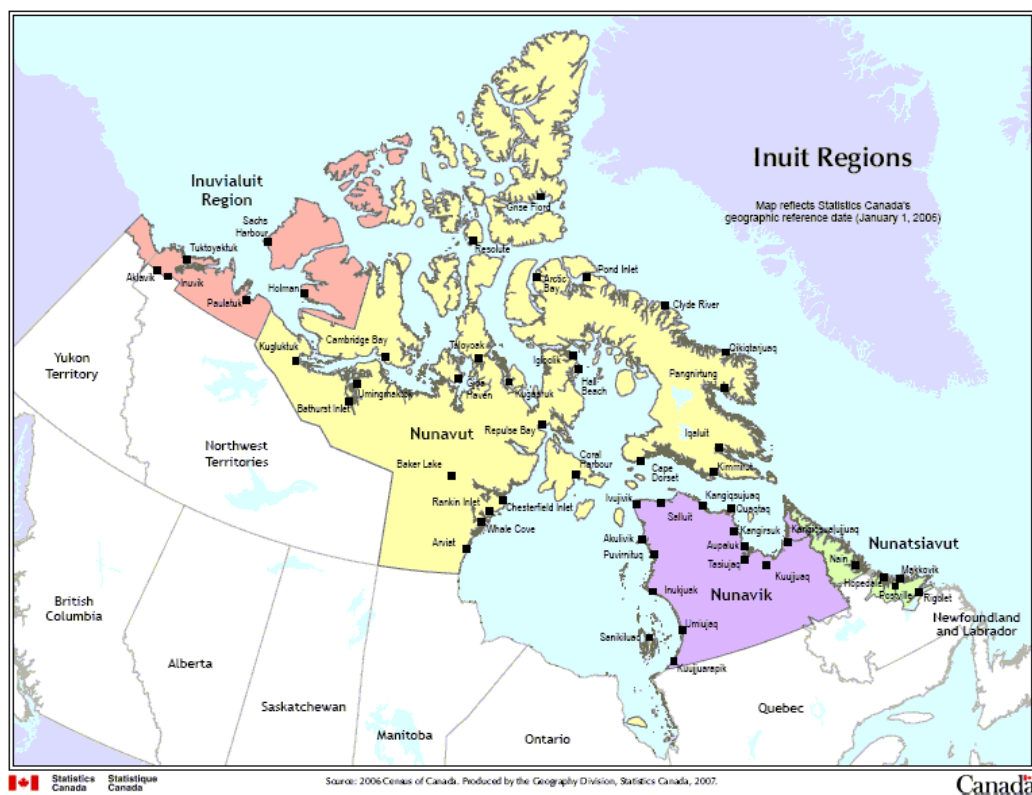


Figure 6 - Inuit Nunaat, showing major communities

Source: Statistics Canada, *Inuit Regions*,

http://www12.statcan.ca/english/census06/analysis/aboriginal/maps/Inuit/InuitRegionsAboriginal_Reference_ec.pdf; Internet, accessed February 06, 2011.

Nunatsiavut (Inuttitut for “Our Beautiful Land”) is the Inuit region located in Labrador. Achieving self-government in 2005, it has a legislative capital in Hope Bay and administrative capital in Nain.¹⁰⁴ The Labrador Land Claims Agreement gives special rights and privileges of the indigenous government to the land, but also to a portion of the sea along its coastline.¹⁰⁵

¹⁰⁴ "Nunatsiavut Government," Nunatsiavut Government, http://www.nunatsiavut.com/index.php?option=com_content&view=frontpage&Itemid=1&lang=en (accessed February 5, 2011).

¹⁰⁵ *Land Claims Agreement between the Inuit of Labrador and Her Majesty the Queen in Right of Newfoundland and Labrador and Her Majesty the Queen in Right of Canada*, (2005): 1, <http://www.ainc-inac.gc.ca/al/ldc/ccl/fagr/labi/labi-eng.pdf> (accessed March 10, 2011) and "Labrador's Inuit Cheer Land Agreement," Canadian Broadcasting Corporation, <http://www.cbc.ca/canada/story/2005/01/22/labrador-land050122.html> (accessed 02/05, 2011).

Nunavik (Inuktitut for “place to live”) comprises a large portion of northern Quebec. Despite the expansiveness of the territory, the population is limited to fourteen settlements, all coastal and concentrated near Ungava Bay.¹⁰⁶ Expected to achieve full self-governance in 2011, the Nunavik government is located in Kuujuaq.¹⁰⁷ The forthcoming land claim will expand Inuit rights to surface and subsurface resources.¹⁰⁸

Nunavut (Inuktitut for “our land”) was established in 1999 with the Nunavut Act.¹⁰⁹ It comprises the majority of the Canadian Arctic Archipelago, with its capital located in Iqaluit.¹¹⁰ With significant infrastructure in place to support military operations, it is likely that Nunavut will be the territory most often engaged by CF operations.¹¹¹

Administered by a territorial government, Nunavut has fewer layers of governance than

¹⁰⁶ Bill Curry, "Quebec Inuit to Sign Historic Self-Governance Agreement," *The Globe and Mail*, <http://www.theglobeandmail.com/news/national/article115036.ece> (accessed 2/5/2011, 2011).

¹⁰⁷ Minnie Grey, "Nunavik Government | the Agreement in Principle and Where it's at," Nunavik Government, http://www.nunavikgovernment.ca/en/archives/news/the_agreement_in_principle_and_where_its_at.html (accessed February 5, 2011) and at the time of writing, Nunavik is still in a period of transition to full implementation of self-governance. Details and updates can be found at: "Nunavik Government," Nunavik Regional Government, http://www.nunavikgovernment.ca/en/archives/nunavik_regional_government/index.html (accessed February 5, 2011) and Canada. Minister of Public Works and Government Services Canada, *Nunavik Land Claims Agreement Implementation Plan* (Ottawa: Minister of Indian Affairs and Northern Development and Federal Interlocutor for Métis and Non-Status Indians, 2007), 1-364.

¹⁰⁸ *Agreement between Nunavik Inuit and Her Majesty the Queen in Right of Canada Concerning Nunavik Inuit Land Claims*, (2006): 1, http://www.collectionscanada.gc.ca/webarchives/20071115061801/http://www.ainc-inac.gc.ca/pr/agr/nunavik/lca/index_e.html (accessed March 10, 2011) and Indian and Northern Affairs Canada, "The Nunavik Inuit Land Claims Agreement - News Release - Indian and Northern Affairs Canada," Minister of Indian and Northern Affairs, <http://www.ainc-inac.gc.ca/ai/mr/nr/s-d2007/2-2956-faq-eng.asp> (accessed 2/6/2011, 2011).

¹⁰⁹ *Nunavut Act*, (1993): 1, <http://laws.justice.gc.ca/en/N-28.6/index.html> (accessed February 05, 2011) and *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*, (1993): 1, http://www.collectionscanada.gc.ca/webarchives/20071115061311/http://www.ainc-inac.gc.ca/pr/agr/pdf/nunav_e.pdf (accessed March 10, 2011).

¹¹⁰ "Government of Nunavut - Facts," Government of Nunavut, <http://www.gov.nu.ca/en/Facts.aspx> (accessed February 5, 2011). Information about Nunavut communities can be found at Natural Resources Canada, "The Atlas of Canada - Nunavut Communities," Natural Resources Canada, <http://atlas.nrcan.gc.ca/auth/english/maps/peopleandsociety/nunavut/people/communities/1> (accessed February 6, 2011).

¹¹¹ CFS Alert and the planned forward operating base at Nanasivik are located in Nunavut. Also, a significant number of Northwest Warning Sites (NWS) and Air Force Forward Operating Locations (FOL) that support Canada's partnership in NORAD, are located in Nunavut.

the other three areas of self-government, which reside partially within provincial or territorial jurisdictions.

The Inuvialuit Settlement Region spans the northern coast of Canada between Nunavut and Alaska. Established in 1984, Inuvialuit is a region rich in natural resources where indigenous control is extended into the sea similar to Nunatsiavut.¹¹² This region is home to the Inuvialuk, an Inuit sub-culture with a capital at Inuvik on the Mackenzie River delta.

Nationally, the Inuit are represented by the Inuit Tapiriit Kanatami (ITK). Headquartered in Ottawa, this organization represents all four regions of the Inuit population through an elected Board of Directors, where the President is understood to be the National Inuit Leader.¹¹³

Operating in areas with self-government intermingled with territorial and federal jurisdictions is not an arena in which the Canadian Navy is accustomed to operating. These Land Claims Agreements represent decades of negotiations and represent a source of pride and high achievement in each Inuit area.¹¹⁴ The legal benefits afforded to Inuit communities cannot be taken lightly, as any business conducted in these regions must include consultation with Inuit representatives. Ramifications can even be felt at the

¹¹² *Western Arctic (Inuvialuit) Claims Settlement Act*, (1984): 1, <http://laws.justice.gc.ca/en/W-6.7/index.html> (accessed February 05, 2011), *The Western Arctic Claim: The Inuvialuit Final Agreement*, Public Law C-49 & C-102, (1984): 1, http://www.collectionscanada.gc.ca/webarchives/20071115155259/http://www.ainc-inac.gc.ca/pr/agr/inu/wesar_e.pdf (accessed March 12, 2011) and "Inuvialuit Settlement Region - NWT Research Wiki," Aurora Research Institute, [http://wiki.nwtresearch.com/\(S\(g4cbxn55peskvt55dwq5z155\)\)/Default.aspx?Page=Inuvialuit Settlement Region&AspxAutoDetectCookieSupport=1](http://wiki.nwtresearch.com/(S(g4cbxn55peskvt55dwq5z155))/Default.aspx?Page=Inuvialuit%20Settlement%20Region&AspxAutoDetectCookieSupport=1) (accessed February 5, 2011).

¹¹³ Inuit Tapiriit Kanatami, "About ITK | Inuit Tapiriit Kanatami," Inuit Tapiriit Kanatami, <http://www.itk.ca/about-itk> (accessed February 5, 2011).

¹¹⁴ Timelines for each of the Land Claims agreements can be found on the INAC website: <http://www.ainc-inac.gc.ca/al/ldc/ccl/fagr/index-eng.asp>

Federal level, as exemplified by delays in negotiating logistical contracts for maintaining the Northwest Warning Sites due to Inuit consultation requirements.¹¹⁵

Referring to the Land Claims Agreements and incorporating the issues pertinent to maritime operations into planning at the operational and tactical level must be included to avoid misunderstandings or embarrassment on behalf of the government. A key example is planning for sustainability due to contracting priorities and ensuring that local business benefits. Regular exercises such as Operation NANOOK are facilitating a better understanding of operating and logistic support under these conditions, and operational planners will need to consistently seek guidance and ensure that adequate records of lessons learned are maintained.

The Inuit society has undergone extensive change due to the influence of the Canadian government over the past sixty years. Extensive studies from a variety of sources paint a sobering status quo of life in the Canadian North. However, the Inuit culture has proven to be adaptive and the inhabitants across the Arctic (not restricted to Canadian borders) seem generally satisfied with the quality of their life in northern communities.¹¹⁶ This should serve as a CF planning consideration. As stated in the previous chapter, Arctic communities generally have populations in the hundreds, if not low thousands. Even a small contingent of CF personnel could create unexpected

¹¹⁵ Andrew Mayeda, "Aboriginal Consultations Delay Tender on Key Arctic Radar Chain," Canada.com, <http://www.canada.com/technology/Somnia/4105238/story.html> (accessed January 14, 2011). The company holding the present contract is Nasittuq, an example of Inuit business achieving success through Land Claim Agreement benefits. Nasittuq is an Inuit partnership with Calgary-based ATCO Structures & Logistics. <http://www.nasittuq.com/company/index.html>

¹¹⁶ Linda Leask, ed., *Survey of Living Conditions in the Arctic: What did we Learn?* (Anchorage: University of Alaska, 2007), 1, http://www.iser.uaa.alaska.edu/publications/researchsumm/SLiCA_07.pdf (accessed January 19, 2011).

stresses on a community's resources.¹¹⁷ Any CF interaction with Arctic inhabitants cannot lessen a community's quality of life.

Farley Mowat eloquently described the Inuit philosophy of interacting with their environment as "choosing to adapt rather than to master it."¹¹⁸ Inuit society could be considered egalitarian, with the community receiving greater importance than the individual.¹¹⁹ Elders were understood to possess the most experience and thus held wisdom to be respected and decisions were made by consensus rather than through the personality of heroic individuals.¹²⁰ This central tenet evolved from the harsh environment upon which their nomadic lifestyle was based. Two other significant facets of Inuit culture are a seasonal lifestyle, which complemented their migratory requirement to follow game and a societal division of labour between males and females.¹²¹

Inuit society was structured by a Traditional Law, which had standards of discipline and punishment geared towards rapidly returning a community back to a state of harmony. Thus tasks entrusted to an accused individual would not be interrupted, and the community would not falter. Competitiveness, boasting or acting contrary to the edicts of elders, traits or actions embraced by our southern society, are all viewed negatively as

¹¹⁷ An Army presence could bring hundreds of soldiers, potentially outpacing the local population centre. Even AOPS, expected to be crewed by 45 personnel could send up to 30 personnel ashore, representing a 10 per cent increase in population to a community of 300 people.

¹¹⁸ Mowat, *Canada North Now: The Great Betrayal*, 28.

¹¹⁹ Louis-Jacques Dorais, "The Canadian Inuit and their Language," in *Arctic Languages: An Awakening*, ed. Dirmid R. F. Collis (Paris: United Nations Educational, Scientific and Cultural Organization (UNESCO), 1990), 199, <http://unesdoc.unesco.org/images/0008/000861/086162e.pdf> (accessed January 30, 2011) and Pauktuutit Inuit Women of Canada, *The Inuit Way - A Guide to Inuit Culture* (Ottawa: Pauktuutit Inuit Women of Canada, 2006), 30, http://www.pauktuutit.ca/pdf/publications/pauktuutit/InuitWay_e.pdf (accessed January 19, 2011).

¹²⁰ Colin Irwin, "Lords of the Arctic: Wards of the State," *Northern Perspectives* 17, no. 1 (January - March, 1989), 9, <http://www.carc.org/pubs/v17nol/2.htm> (accessed January 2, 2011) and Pauktuutit Inuit Women of Canada, *The Inuit Way - A Guide to Inuit Culture*, 24.

¹²¹ Dorais, *The Canadian Inuit and their Language*, 199.

they potentially jeopardize community welfare. Negative emotions were kept in check, with outwardly upbeat expressions expected to maintain community morale.¹²²

Gossip was used as punishment, seeking to shame troublemakers back to an accepted state of behaviour. More serious offences could lead to ostracism or an elaborate duel of song where the community judged the outcome.¹²³ Should violence be deemed suitable, punching or wrestling matches were strictly controlled to ensure a rapid outcome with minimal injury to either party.¹²⁴

Unexpected (or unwanted) child births were treated as a community affair, with adoption occurring to ensure the continued propagation of community populations.¹²⁵ Child rearing was also a community affair, with mentorship being a primary aspect of developing children.¹²⁶ Finally, while individuals were expected to contribute to community well-being, the actions themselves were not expected to be dictated.¹²⁷ Thus a hunter could come and go as he pleased, to hunt where and when he pleased. Someone assigned to mentor a child would do so at the student's own pace, and teaching sessions would be dictated by the mentor.¹²⁸

Seasonal changes drove Inuit community relocation, to follow the prevailing game, resulting in different cycles of activity. These seasonal expectations persist, where summer is a season for subsistence activities and relearning traditions, where winter is for hard work, school and routine to combat the oppressiveness of winter weather.¹²⁹

¹²² Pauktuutit Inuit Women of Canada, *The Inuit Way - A Guide to Inuit Culture*, 32.

¹²³ *Ibid.*, 10.

¹²⁴ *Ibid.*, 12.

¹²⁵ *Ibid.*, 20.

¹²⁶ *Ibid.*, 19.

¹²⁷ *Ibid.*, 34.

¹²⁸ *Ibid.*, 19.

¹²⁹ *Ibid.*, 6.

Traditional family dynamics focused on male members being hunters and gatherers, required to spend long periods living in the wild, fighting against the elements, eventually to return with game to be used as food and materials for clothes and shelter. The women would remain to rear children, create and repair clothes and prepare meals.¹³⁰ This was not a male-dominated society where women were marginalized or considered as inferior, rather a separation of tasks based on innate strengths of either sex, where males were naturally stronger and more resilient in the wild and the authority of females within the home was not disputed.

Understanding and developing cultural fluency should be a goal, if not a priority for operational planners to better prepare tactical-level operators. A lesson from the situation in Oka was that CF personnel did not fully understand Iroquoian leadership structure.¹³¹ A more developed sense of Inuit culture could prove significant in rectifying an unforeseen crisis.

Inuit relocation to settled communities impacted numerous areas of their society. Residential schools sought to expunge Inuit culture and language from the children under their care.¹³² Today, the government has publically taken steps to account for the negative outcomes of these past policies. CF planning must take into account the fact that as “agents of the state,” CF personnel must foster the overarching policy of nurturing and building relationships and trust with the Inuit people.¹³³ (Pauktuutit Inuit Women of Canada 2006)

¹³⁰ Pauktuutit Inuit Women of Canada, *The Inuit Way - A Guide to Inuit Culture*, 22.

¹³¹ Kerr and Davis, *Appendix C - Reflecting on Oka: The Legacy of Mission Success*, 123.

¹³² Irwin, *Lords of the Arctic: Wards of the State*, 4.

¹³³ The Government issued a formal apology for Inuit relocation in 2010. John Duncan, Apology for the Inuit High Arctic Relocation, August 18, 2010, <http://www.ainc-inac.gc.ca/ai/mr/spch/2010/aug18-eng.asp> (accessed February 06, 2011). Present Canadian government initiatives with respect to Inuit quality of life

Language is often linked with cultural identity and its prevalence and protection is a significant issue in Canadian society.¹³⁴ Inuit culture holds language sacred, as it is central to the legend that established the Inuit themselves.¹³⁵ Language differences with government census agents in the 1940s resulted in Canadian Inuit being officially stripped of their given names and provided numbers and Christian names.¹³⁶ Inuit disc numbers were inscribed on leather tags, expected to remain on each individual at all times. This practice persisted until 1968.

Inuktitut is the understood dominant language of the Canadian Arctic; however there are regional dialects owing to the isolated dispersion of Inuit populations (see Figure 7).¹³⁷ Generally, Inuktitut remains widely spoken in Inuit communities.¹³⁸ The influx of southern influence through television and the internet, threatens to “water down” the richness of the language, yet recent self-government initiatives are taking action to increase the prevalence of language schooling and its mandatory use in official business.¹³⁹ While the high usage of Inuktitut may portray the language as safe, scrutiny of regional challenges say otherwise. Inuttitut, a dialect spoken in Nunatsiavut, is in severe jeopardy unless the newly formed government can take steps to address it.¹⁴⁰

are found at Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 19.

¹³⁴ Immigration et Communautés culturelles Québec, "The Common Values of Quebec Society," Immigration et Communautés culturelles Québec, <http://www.immigration-quebec.gouv.qc.ca/publications/en/common-values/feu-values-en.pdf> (accessed February 6, 2011).

¹³⁵ Dorais, *The Canadian Inuit and their Language*, 186.

¹³⁶ Ann Meekitjuk Hanson, "Nunavut 99 - what's in A Name?" Nunavut Tunngavik Incorporated, <http://www.nunavut.com/nunavut99/english/name.html> (accessed 1/17/2011, 2011).

¹³⁷ Dorais, *The Canadian Inuit and their Language*, 191.

¹³⁸ Leask, *Survey of Living Conditions in the Arctic: What did we Learn?*, 1.

¹³⁹ Irwin, *Lords of the Arctic: Wards of the State*, 8, Tungavik Federation of Nunavut, "An Inuit Response," *Northern Perspectives* 17, no. 1 (January - March, 1989), 3, <http://www.carc.org/pubs/v17no1/4.htm> (accessed January 31, 2011).

¹⁴⁰ Catharyn Andersen and Alana Johns, "Labrador Inuttitut: Speaking into the Future" University of Toronto), 14, <http://homes.chass.utoronto.ca/~ajohns/Andersen~Johns.pdf> (accessed January 19, 2011).

Elsewhere, statistics reveal that the prominence of Inuktitut in Nunavut is forecast to decline, hopefully mitigated by being more widely taught as a second language.¹⁴¹

CF operations should include Inuktitut in planning considerations.¹⁴² There exist sufficient resources for initial research, made available from other government initiatives. This could include employing translators to assist in forging relationships or doing business with vendors, or having any media provided to Arctic inhabitants translated to enhance audience acceptance.

Developing SA and CQ for the Inuit society will require operational planning and AOPS personnel to receive a relevant and truthful understanding of past Inuit culture and its development. Many of the living elders lived these changes firsthand, growing up immersed in societal norms now considered traditional; and these issues will continue to be relevant for future consideration. CQ will not be realized quickly, but striving to develop strong relationships and understandings should be seen as a priority for operational planners to allow for the “boots on the ground” that will conduct regular exercises will be understood and welcomed.

¹⁴¹ Statistics Canada, "Aboriginal Peoples in Canada in 2006: Inuit, Métis and First Nations, 2006 Census: Inuit: Language: Inuktitut Remains Strong, but its use has Declined," Statistics Canada, <http://www12.statcan.ca/census-recensement/2006/as-sa/97-558/p9-eng.cfm> (accessed February 6, 2011).

¹⁴² Online phrase dictionaries, translation services and linguistic studies are available. Alex Spalding, "Inuktitut - A Multi-Dialectal Outline Dictionary," Nunavut Arctic College, <http://www.inuktitutcomputing.ca/Spalding/en/spalding.shtml> (accessed January 28, 2011) and Mick Mallon, "Inuktitut Linguistics for Technocrats," National Research Council Canada, http://www.inuktitutcomputing.ca/Technocrats/ILFT_1.html (accessed January 28, 2011).

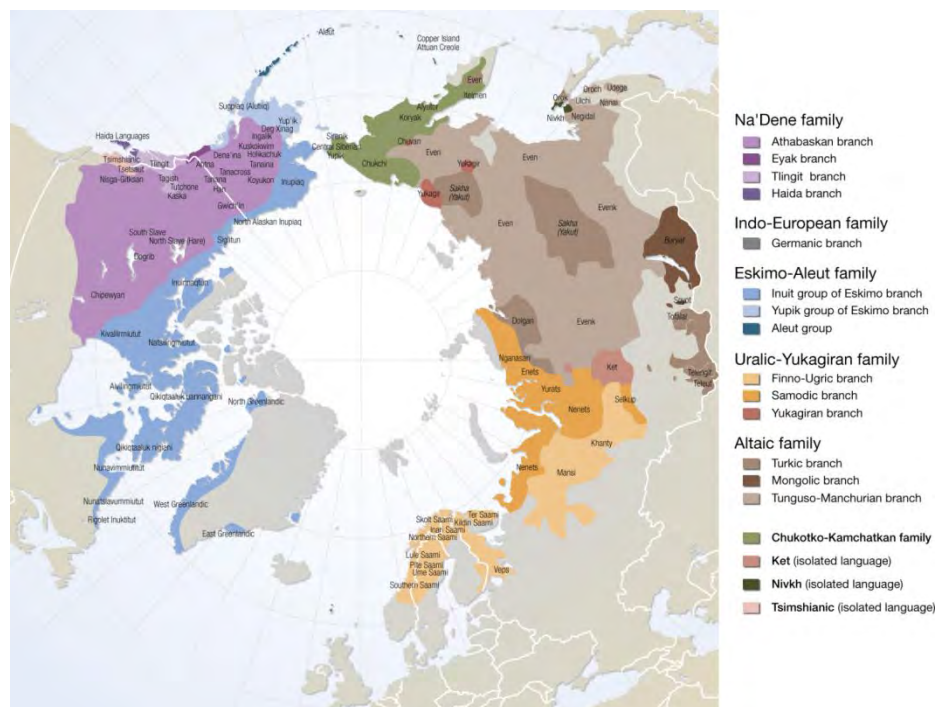


Figure 7 - Indigenous languages of the Arctic¹⁴³

Source: Ahlenius, Demography of indigenous peoples of the Arctic based on linguistic groups, <http://maps.grida.no/go/graphic/demography-of-indigenous-peoples-of-the-arctic-based-on-linguistic-groups1>; Internet, accessed February 05, 2011.

INUIT CHALLENGES

SUBSISTENCE ACTIVITIES

The Inuit society still heavily engages in subsistence activities.¹⁴⁴ These activities have been in response to many factors, including price of imported food, maintaining a connection to traditional culture and their land, and embracing traditional diets with corresponding health benefits. Of these subsistence activities, fishing, berry-seeking and hunting constitute the majority.¹⁴⁵

¹⁴³ While this chapter focuses on the specifics of the Canadian Arctic, this Figure provides an overview of the international diversity found with all languages in the Arctic, to provide operational planners insight when AOPS missions proceed abroad.

¹⁴⁴ Leask, *Survey of Living Conditions in the Arctic: What did we Learn?*, 2.

¹⁴⁵ *Ibid.*, 3.

Subsistence activities have contributed to the present mixed economy of the Canadian North that offsets the significant unemployment rates.¹⁴⁶ These unemployment rates are a result of various factors, and are not likely to fall due to populations increasing beyond current trends of economic development. Nonetheless, a northern mixed economy is desired by the population, who also acknowledge that more full-time jobs could lead to improved community health.¹⁴⁷

External threats to subsistence activities are mounting. The demand for the fur and seal trade is in decline.¹⁴⁸ Climate change is affecting animal patterns and populations relied upon by hunters. Terrain affected by warming trends limits hunting areas.¹⁴⁹ Coastal erosion is impacting water supplies for both indigenous and animal populations.¹⁵⁰ Finally, climate change could place conservation efforts at odds with traditional Inuit hunting and subsistence rights. The polar bear is an example where dwindling numbers have resulted in public attention, with a study revealing that hunting is having a larger effect upon populations than climate change and sea ice reduction.¹⁵¹

¹⁴⁶ Unemployment rates in the North vary between 20% to as high as 50%. Statistics Canada, *Aboriginal Population Profile from the 2006 Census, Statistics Canada - Census Subdivision*. The National average is 8%. Statistics Canada, "National Unemployment Rate - Latest Release from the Labour Force Survey. Friday, February 4, 2011," Statistics Canada, <http://www.statcan.gc.ca/subjects-sujets/labour-travail/lfs-epa/lfs-epa-eng.htm> (accessed February 9, 2011).

¹⁴⁷ Tungavik Federation of Nunavut, *An Inuit Response*, 1. There are many instances where Inuit report an increase in available jobs would benefit communities in many healthy ways. Leask, *Survey of Living Conditions in the Arctic: What did we Learn?*, 3. is a recent example, or Irwin, *Lords of the Arctic: Wards of the State*, 5. from over a decade ago.

¹⁴⁸ *Ibid.*, 4.

¹⁴⁹ Huntington, *Update on Selected Climate Issues of Concern: Observations, Short-Lived Climate Forcers, Arctic Carbon Cycle, and Predictive Capability*, 7 and Megan Lane, "Canada's Inuit Gather Mussels Under the Sea Ice," British Broadcasting Corporation (online), <http://www.bbc.co.uk/news/science-environment-12241053> (accessed January 24, 2011).

¹⁵⁰ Dan Rutz and Alan Parkinson, "Disparities in Arctic Health," Center for Disease Control, http://www2c.cdc.gov/podcasts/media/pdf/EID_ArcticInvestig.pdf (accessed February 6, 2011) and Huntington, *Update on Selected Climate Issues of Concern: Observations, Short-Lived Climate Forcers, Arctic Carbon Cycle, and Predictive Capability*, 13.

¹⁵¹ Christine M. Hunter and others, "Climate Change Threatens Polar Bear Populations: A Stochastic Demographic Analysis," *Ecology* 91, no. 10 (October, 2010), 2883-2897,

Enacting measures to conserve polar bear populations is a situation where the Canadian government, public opinion and Inuit populations may require negotiation and is an issue that could strain relations.

While most CF operations cannot directly support Inuit subsistence activities, the Junior Canadian Rangers (JCR) program does.¹⁵² Sponsored by the Canadian Rangers, this program is recognized as a significant deterrent for other negative social issues in northern communities.¹⁵³ Any assistance, promotion or support to the JCR that CF operations can include will strengthen relationships between communities and visiting CF personnel. Likewise, CF operations must remain cognizant of environmental pressures and not endanger local flora or fauna that could negate any strides with local populations.¹⁵⁴ The seasons associated with subsistence activities must be taken into consideration when planning community engagement. Having an AOPS arrive to conduct a port visit or planned event when a significant portion of the population is devoted to traditional living activities elsewhere could cause embarrassment and squander funds and time.

<http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=54998807&site=ehost-live> (accessed January 24, 2011) and Arctic Council, "International Monitoring Plan for Polar Bears," Arctic Council Secretariat, http://arctic-council.org/international_monitoring_plan_for_polar_bears (accessed March 9, 2011).

¹⁵² "Junior Canadian Rangers - Overview," Canadian Forces, <http://www.rangers.dnd.ca/ove-ape/index-eng.asp> (accessed February 12, 2011).

¹⁵³ Lackenbauer, *The Canadian Rangers: A "Postmodern" Militia that Works*, 53.

¹⁵⁴ This thought process should not be restricted to Canadian borders. Greenland, located nearby will likely be a regular port-of-call for AOPS and could bring positive exposure from local community assistance. Environmental standards may be lower than Canadian laws, but the more stringent should always be followed.

POLLUTION

Arctic pollution is affecting food chains. Traditional Inuit diet has proven to be of good nutritional value, but is most susceptible to communicating food chain-based contaminants.¹⁵⁵ Some animals involved in traditional hunting practices are more susceptible, and prone to pass on toxicity to Arctic communities.¹⁵⁶ This has resulted in diets shifting away from traditional raw meats derived from local game towards affordable, mass-produced food from the south.¹⁵⁷ Balancing Inuit culture and tradition, minimizing exposure to harmful toxins and maintaining healthy Northern diets has resulted in initiatives to educate northern communities towards better dietary choices.

CF planners will have to realize that sustainment for AOPS and other CF projects will likely rely on contractors, and that the availability of food to those venturing into communities for leave or other purposes will be limited. CF personnel should also be educated on the risks associated with partaking in traditional Inuit food, and how best to accept or decline these offers.

¹⁵⁵ Jens C. Hansen and others, eds., *AMAP Assessment 2009: Human Health in the Arctic* (Oslo: Arctic Monitoring and Assessment Programme, 2009), 22, <http://amap.no/documents/index.cfm?action=getfile&dirsub=&filename=Human%5Fhealth-near%5Ffinal7.pdf&CFID=1723&CFTOKEN=16CD3F4B-B61A-1007-C4179B43D2613B52&sort=default> (accessed March 12, 2011).

¹⁵⁶ Nilsson and Huntington, *Arctic Pollution 2009*, 39.

¹⁵⁷ Emily Chung, "Arctic Health Officials Learn from PCB Mistakes," Canadian Broadcasting Corporation, <http://www.cbc.ca/technology/story/2010/04/28/toxic-arctic-food-contamination-pcb.html> (accessed January 18, 2011) and Chapin III and others, *Polar Systems*, 735.

EDUCATION

Inuit education is a significant issue in Canada's North. In 2002, 59% of Inuit aged 20 had not completed high school.¹⁵⁸ A long-standing issue, Colin Irwin found that older Inuit claimed to have received a better education from the residential school system, despite its associated history of cultural suppression.¹⁵⁹ The settlement of Inuit into static communities has also impacted the dissemination of traditional Inuit skills through student observing mentor and later mimicking.¹⁶⁰

Early attempts to improve scholastic attendance resulted in the “watering-down” of curriculums, to the point where vast disparities occurred between the grade being attended and applicable level of academic achievement. Thus a northern Grade 7 student tests at a Grade 2 level. A second order effect is high rates of failure in all training programs outside of the northern school system.¹⁶¹ Culturally, Inuit unable to grasp or comprehend new concepts or skills withdraw from the inherent unfamiliar surroundings.¹⁶² This prompts the individual to quit, leading to high drop-out and failure rates.

Educational shortfalls feed into and exacerbate other northern challenges. Young adults not attending school adds pressure to the slim job market.¹⁶³ Northern communities do recognize the dangers of a poor educational system and are seeking

¹⁵⁸ Inuit Tapiriit Kanatami, *State of Inuit Learning in Canada* (Ottawa: Inuit Tapiriit Kanatami, 2005), 7.

¹⁵⁹ Irwin, *Lords of the Arctic: Wards of the State*, 7.

¹⁶⁰ Pauktuutit Inuit Women of Canada, *The Inuit Way - A Guide to Inuit Culture*, 19.

¹⁶¹ Irwin, *Lords of the Arctic: Wards of the State*, 8.

¹⁶² Pauktuutit Inuit Women of Canada, *The Inuit Way - A Guide to Inuit Culture*, 39.

¹⁶³ Statistics Canada, *Fact Sheet: Inuit Health, Education and Country Food Harvesting* (Ottawa: Statistics Canada, 2008), 2.

remedies.¹⁶⁴ CF members will have to realize that the northern population will have a much lower level of education compared to the rest of Canada, with associated lower comprehension levels for certain subjects normally taken for granted. Personnel proceeding ashore, or dealing with Inuit businesses, must not be permitted to act upon stereotypes regarding Inuit intelligence and commit errors in judgement or make comments that could seriously undermine government and CF interests in northern communities.

Seeking CF opportunities to assist in northern education returns emphasis to the JCR program. Flexible and community driven, it can receive the full attention of community leaders in addressing issues related to poor education and loss of traditional skills.¹⁶⁵ Producing northern young adults with basic skills in time management, planning and a desire to remain challenged, the JCRs can develop into future Canadian Rangers and community leaders. Visiting AOPS will hold a significant pooling of professional and trade knowledge, and there may be opportunities for the CF to partner with existing programs to assist in education, or foster interest in continued schooling through presentation or example. Promoting continued learning development in any form and fully supporting JCR programs should be seen as a priority for CF operational planners to incorporate into AOPS mission effects.

¹⁶⁴ Inuit Tapiriit Kanatami, *State of Inuit Learning in Canada*, 5. An example of opportunities for post-secondary education is the University of the Arctic is an international association of universities and colleges aimed at providing higher education opportunities to the Arctic region.

<http://www.uarctic.org/organizations2.aspx?group=GOvCouncil&title=Council&m=219>

¹⁶⁵ Lackenbauer, *The Canadian Rangers: A "Postmodern" Militia that Works*, 53.

EMPLOYMENT

High unemployment rates are a threat to northern community stability and are most cited as the cause of northern communities' problems.¹⁶⁶ While statistics vary, northern unemployment is well above the national average.¹⁶⁷ As northern populations increase, and median age remains below the national average, conditions within an impacted community may produce high levels of family violence, health issues or crime.

Northern economic development is a stated priority for the federal government, yet measured and comprehensive progress is needed.¹⁶⁸ Modelling has predicted that employment opportunities that are finite in nature (*i.e.*: road construction to promote tourism or exploration) can result in a larger community suddenly worse off once the project is complete.¹⁶⁹ CF planners will have to be sensitive to these issues and promote northern employment when considering long-term projects or goals.

High unemployment can lead to civil unrest. Consultation with INAC could help develop SA for communities potentially at risk for riots or similar disturbances. If local law enforcement were to be overwhelmed, contingency plans should exist for a nearby patrolling AOPS to assist.¹⁷⁰

¹⁶⁶ Leask, *Survey of Living Conditions in the Arctic: What did we Learn?*, 3.

¹⁶⁷ Colin Irwin estimated an unemployment rate of 48% in 1989. In 2001, Nunavut government statistics estimated an unemployment rate between 28% and 46%. Irwin, *Lords of the Arctic: Wards of the State*, 5 and Inuit Tapiriit Kanatami, *State of Inuit Learning in Canada*, 3.

¹⁶⁸ Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 19.

¹⁶⁹ Matthew Berman and others, "Adaptation and Sustainability in a Small Arctic Community: Results of an Agent-Based Simulation Model," *Arctic* 57, no. 4 (December, 2004), 408, <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=15356663&site=ehost-live> (accessed December 18, 2010).

¹⁷⁰ Canadian Forces personnel have strict and specific guidelines for employment in domestic operations or support to law enforcement. The Emergencies Act and National Defence Act both list instances and restraints for CF participation. Canada Command Directives consolidate language from this legislation in

HEALTH

Canadian Inuit are generally less healthy than the national average.¹⁷¹ This is due to persistent pollutants affecting the Arctic food chain, the gradual shift towards store-bought alternatives, and high rates of addictions.¹⁷² The high cost of fresh groceries and the prevailing favouritism of pre-packaged meals have resulted in high incidences of obesity (with the associated follow-on issues of diabetes, heart disease and cancer.)¹⁷³ The Inuit population also shows high occurrences of alcohol and drug abuse.¹⁷⁴ Inuit culture does not place stigmas on casual sex based on past nomadic customs, increasing exposure to disease and unexpected pregnancies.¹⁷⁵

Food intake from subsistence activities remains high among Canadian Inuit.¹⁷⁶

Promotion of traditional diets by identifying game at lower risk for contaminants seeks to

its Directives on Domestic Operations. Canada Command, *Canada Command Directives on Domestic Operations (CCDDO)*, 3.

¹⁷¹ Nilsson and Huntington, *Arctic Pollution 2009*, 77.

¹⁷² Chung, *Arctic Health Officials Learn from PCB Mistakes*, 2 and Nilsson and Huntington, *Arctic Pollution 2009*, 39. Testing for contaminants has shown that affected humans is also a regional issue. Communities in Inuvialuit showed far lower levels of mercury and PCB in those tested compared with Nunavik and Nunavut. *Ibid.*, 49.

¹⁷³ E. Mead and others, "Important Psychosocial Factors to Target in Nutrition Interventions to Improve Diet in Inuvialuit Communities in the Canadian Arctic," *Journal of Human Nutrition & Dietetics* 23, Supplement (October, 2010), 96, <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-277X.2010.01095.x/pdf> (accessed January 20, 2011) and B. N. Hopping and others, "Socioeconomic Indicators and Frequency of Traditional Food, Junk Food, and Fruit and Vegetable Consumption Amongst Inuit Adults in the Canadian Arctic," *Journal of Human Nutrition & Dietetics* 23, no. Supplement (October, 2010), 56, <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-277X.2010.01100.x/pdf> (accessed January 20, 2011). A disturbing statistic stated that an average third of Inuit children have reported going hungry due to a lack of available food brought on by lack of funds. Statistics Canada, *Fact Sheet: Inuit Health, Education and Country Food Harvesting*, 2.

¹⁷⁴ Nilsson and Huntington, *Arctic Pollution 2009*, 62 and Leask, *Survey of Living Conditions in the Arctic: What did we Learn?*, 3.

¹⁷⁵ Pauktuutit Inuit Women of Canada, *The Inuit Way - A Guide to Inuit Culture*, 26 and Linda Archibald, *Teenage Pregnancy in Inuit Communities: Issues and Perspectives* (Iqaluit: Pauktuutit Inuit Women of Canada, 2004), 9.

¹⁷⁶ Statistics Canada, *Fact Sheet: Inuit Health, Education and Country Food Harvesting*, 3 and Leask, *Survey of Living Conditions in the Arctic: What did we Learn?*, 1.

increase health and strengthen cultural activities. CF personnel embarking Inuit for extended periods should plan to include northern dietary staples.

Diseases prevalent in the North are tuberculosis, Hepatitis-C, and HIV. In 2010, northern tuberculosis cases were 62 times higher than the national average.¹⁷⁷ Northern HIV cases occur mainly through intravenous drug use, and the rate is much higher than the national average.¹⁷⁸ CF planners should closely cooperate with concerned OGDs, to cooperate in developing health SA and considering medical issues that could affect visiting CF personnel. AOPS medical capacity may allow for influencing local health trends by assisting local clinics during visit periods or by incorporating community medical needs in area resupply plans.

SUICIDE

The incredibly high northern incidence of suicide represents a health issue that is also a pervasive and tragic northern phenomenon. Considered an epidemic with increasing rates over the past thirty years, it has been acknowledged that a concerted, coordinated and focused effort will be required to turnaround a tragic trend that is now considered “normal.”¹⁷⁹ While it is unlikely that CF activities can directly contribute to

¹⁷⁷ Bob Weber, "Worst TB Outbreak in Nunavut's History a National Problem: CMAJ," The Star, <http://www.thestar.com/news/canada/article/938543--worst-tb-outbreak-in-nunavut-s-history-a-national-problem-cmaj> (accessed March 15, 2011) and "Canada to Commit \$800,000 to Fight Tuberculosis in North," Canadian Broadcasting Corporation, <http://eyeontheartctic.rcinet.ca/en/news/canada/45-society/622-canada-to-commit-800000-to-fight-tuberculosis-in-north> (accessed January 14, 2011).

¹⁷⁸ Health Canada, *A Statistical Profile on the Health of First Nations in Canada: Self-Rated Health and Selected Conditions, 2002 to 2005* (Ottawa: Minister of Health Canada, [2009]), http://www.hc-sc.gc.ca/fniah-spnia/alt_formats/pdf/pubs/aborig-autoch/2009-stats-profil-vol3/2009-stats-profil-vol3-eng.pdf (accessed January 31, 2011).

¹⁷⁹ Government of Nunavut, *Nunavut Suicide Prevention Strategy* (Iqaluit: Nunavut Tunngavik Incorporated, 2010), 1.

suicide prevention, it would behoove leaders and planners to understand the background to this issue.

Suicide occurs at four times the national average in the Arctic, with Inuit males exhibiting the highest risk.¹⁸⁰ Rates of incidence increase in an easterly direction, with the Baffin area (including Iqaluit) showing the highest signs. The Inuit had a very low rate of suicide prior to settlement and “westernization.” Today, risk factors associated with suicide occur in abundance in Inuit communities, including alcohol abuse, family violence and sexual abuse.¹⁸¹ In 2009, half of northern hospital admissions were due to suicide attempts.¹⁸² The availability of firearms, combined with the occasions of suicide while the individual is intoxicated or otherwise under the influence of a narcotic accounts for a third of incidents.¹⁸³ Despite the prevalence of suicide, Inuit culture places a stigma on openly discussing suicide, which CF planners should consider when seeking to discuss this with northern leaders.¹⁸⁴

CF planners need to understand the impact suicide is having on northern communities and culture. Those performing missions must be suitably trained to understand how best to conduct themselves if faced with a sudden death occurring in a visited community.

¹⁸⁰ Isaacs and others, *Suicide in the Northwest Territories: A Descriptive Review*, 3 and Government of Nunavut, *Nunavut Suicide Prevention Strategy*, 3.

¹⁸¹ *Ibid.*, 10.

¹⁸² Government of Nunavut, *Nunavut Suicide Prevention Strategy*, 5.

¹⁸³ Isaacs and others, *Suicide in the Northwest Territories: A Descriptive Review*, 6.

¹⁸⁴ Patrick White, "The Trials of Nunavut: Lament for an Arctic Nation," *The Globe and Mail*, <http://www.theglobeandmail.com/news/national/nunavut/northern-crime/article1963420/> (accessed April 4, 2011).

HOUSING

The Inuit, considered Canadian aboriginals, enjoy significant health benefits under government legislation.¹⁸⁵ A significant issue not considered but significantly contributing to poor health is the chronic housing shortage. Despite slow but steady improvements, half the northern Inuit population live in crowded conditions.¹⁸⁶ Crowding increases the incidences of communicable diseases and exacerbates social issues, such as family violence or sexual abuse.¹⁸⁷ Water quality remains a concern, with approximately a third of all Inuit reporting contaminated drinking water during the year, with the highest prevalence in Nunavik.¹⁸⁸

Housing shortages represent a possible avenue for CF community assistance to be seen actively contributing to northern quality of life. Similar to expectations during humanitarian relief overseas, the CF could regularly contribute to ongoing projects by leveraging existing trade knowledge inherent in CF training. Raising homes constructed in a modular fashion could be completed in a short period of time and steadily help contribute to a community's capacity to absorb growing populations and scarce job opportunities.¹⁸⁹ Smaller AOPS crews will necessitate prior planning and cooperation among agencies and from within the community itself. These activities could also serve

¹⁸⁵ Health Canada, *First Nations and Inuit Health Programs Compendium* (Ottawa: Minister of Health Canada, 2007), 79, http://www.hc-sc.gc.ca/fniah-spnia/alt_formats/fnihb-dgspni/pdf/pubs/gen/cs-133_compendium-eng.pdf (accessed January 31, 2011).

¹⁸⁶ Vivian O'Donnell and Heather Tait, *Aboriginal Peoples Survey 2001 - Initial Findings: Well-being of the Non-Reserve Population* (Ottawa: Statistics Canada, 2003), 25.

¹⁸⁷ Pauktuutit Inuit Women of Canada, *Family Violence in the Canadian Arctic* (Iqaluit: Pauktuutit Inuit Women of Canada, 2006), 6.

¹⁸⁸ O'Donnell and Tait, *Aboriginal Peoples Survey 2001 - Initial Findings: Well-being of the Non-Reserve Population*, 26.

¹⁸⁹ "Arctic Green Homes can be Built in 5 Days," Canadian Broadcasting Corporation, <http://www.cbc.ca/news/canada/north/story/2009/09/25/ottawa-arctic-kott-nunavut-houses.html> (accessed March 15, 2011).

as team building exercises between various government agencies, the CF and community leaders, while contributing to positive PA initiatives.

CRIME

Unless an unforeseen, drastic situation arises, it is not expected that AOPS personnel or CF personnel in general will contribute to constabulary roles. However, the high prevalence of northern property and family violence is worth noting. Infrastructure security must be considered to protect against northern property crimes, to avoid expensive repairs or interruptions to planned operations. The pervasiveness of family violence may present itself to visiting CF members in unexpected ways. It would be undesirable for a CF member to act in a way that discredits the service. A CF member intervening inappropriately could result in media attention, and emphasizes a potential need for understanding the boundaries and powers inherent in “citizen’s arrest.” RCMP members serving in remote detachments with families should not be forgotten in AOPS visit planning, as it may be therapeutic for these members and their families to interact with those of familiar cultures.

Violations of the Canada Criminal Code in Nunavut have been double that of the Canadian average, with violent crimes (including family violence) up to six times the Canadian average.¹⁹⁰ The Inuit culture generally avoids encouraging outside agencies to intervene in their problems, a characteristic that results in considerable community

¹⁹⁰ Darryl Wood, "Violent Crime and Characteristics of Twelve Inuit Communities in the Baffin Region, NWT" (Doctor of Philosophy, PhD diss, Simon Fraser University), 13, <http://www.darrylwood.com/DarrylWoodDissertation.pdf> (accessed March 12, 2011) and Curt Taylor Griffiths and others, *Policing the Baffin Region, NWT: Findings from the Eastern Arctic Crime and Justice Study* (Burnaby: Simon Fraser University, 1995), 16.

silence.¹⁹¹ Thus it has been estimated that up to a third of spousal abuse cases go unreported.¹⁹² Family violence can perpetrate future violence in children, and is a significant risk factor for suicide. Violent homes lead to poor results in school and have been shown to prompt women to turn to high-risk lifestyles.¹⁹³

Organized crime is largely concentrated in mining areas or more urban centres. However, climate change could alter this dynamic and raise threat levels due to the paucity of government agents able to cover all entry points.¹⁹⁴ An increase in organized crime that contributes to prostitution or human trafficking could result in further destabilization of northern communities and further stress the resources of local aid agencies.

Successful RCMP officers require significant levels of maturity and independence. This can also be said for their spouses. Spousal interaction in local northern communities vary, dependant on personality, availability of positions and the openness of the local members.¹⁹⁵ It seems reasonable that concurrent with official AOPS personnel assisting RCMP for a planned event, that social occasions also be considered.

¹⁹¹ Curt Taylor Griffiths and others, *Policing the Baffin Region, NWT: Findings from the Eastern Arctic Crime and Justice Study* (Burnaby: Simon Fraser University, 1995), 83.

¹⁹² Pauktuutit Inuit Women of Canada, *Family Violence in the Canadian Arctic*, 7.

¹⁹³ National Collaborating Centre for Aboriginal Health, *Family Violence as a Social Determinant of First Nations, Inuit and Metis Health* (Prince George: University of Northern British Columbia,[2009]), http://www.nccah-ccnsa.ca/docs/fact%20sheets/social%20determinates/NCCA_H_fs_familyviolence_EN.pdf (accessed January 19, 2011).

¹⁹⁴ Jesper Hansen, "Crime in the Arctic," Arctic Council, http://arctic-council.org/article/2009/8/crime_in_the_arctic (accessed March 15, 2011).

¹⁹⁵ Griffiths and others, *Policing the Baffin Region, NWT: Findings from the Eastern Arctic Crime and Justice Study*, 101.

Family violence in northern communities brings negative publicity.¹⁹⁶ Despite attempts to reduce occurrences, studies ten years apart show striking similarities. CF personnel will arrive in the Arctic amidst fanfare and expectations of maintaining “sovereignty,” which could be misconstrued by mass media and the larger population as being on guard to solve a myriad of problems. Operational planners should scrutinize existing policies and determine what contingencies could arise based on the high prevalence of crime, to ensure swift reaction to unforeseen incidents while still maintaining a positive public image and remaining within legislated jurisdictions.

CONCLUSION

In order to satisfactorily operate in the Canadian North over an extended period, the CF will need to acquire and improve on CQ as it relates to the Inuit. The international business community is actively seeking to harness the power of diversity. Fields of study continue to emerge that enable culture to be used less as a barrier and more as a means to capitalize on opportunities.¹⁹⁷ Viewing Inuit social mores and values through the eyes of a “southern” Canadian, one sees striking differences. While the western-oriented, southern Canadian culture could be seen as high achievement-oriented and individualistic, Inuit society remains introverted, community-driven and modest. However, the myriad of social issues caused by rapid changes imposed on this northern society has resulted in significant challenges that would confound any new visitor.

¹⁹⁶ See for instance: Susan Sammons, "Band-Aid Solutions for Family Violence," *Canadian Arctic Resources Committee* 17, no. 3 (August-October, 1989), 1-2, <http://www.carc.org/pubs/v17no3/6.htm> (accessed January 19, 2011), "Nunavut, Canada Family Abuse Act Failing: Report," Canadian Broadcasting Corporation, <http://eyeontheartic.rcinet.ca/en/news/canada/45-society/528-nunavut-canada-family-abuse-act-failing-report> (accessed January 19, 2011) and "Nunavut Weak at Protecting Children," Canadian Broadcasting Corporation, <http://www.cbc.ca/news/canada/north/story/2011/03/08/nunavut-child-services-auditor-general.html> (accessed March 9, 2011).

¹⁹⁷ Soderberg and Holden, *Rethinking Cross Cultural Management in a Globalizing Business World*, 113.

CF members cannot start conducting government business by forming stereotypes. Basic anthropological studies teach that, viewed through another's eyes, our culture is just as shockingly different.¹⁹⁸ Any planner or leader supervising CF personnel in the Arctic theatre must realize how they, as Qallunaat, are viewed.¹⁹⁹ It will not be enough for a CF officer to simply eat politely according to the norms of the Inuit, but rather to learn from embarrassing mistakes and communicate them in a fashion that allows for institutional learning.²⁰⁰

Despite common challenges, there is individual diversity within the four regions of the Arctic and CF planners should strive to ensure that an equal (or at least regular) apportionment of effort and visitation takes place in each. This will require understanding the differences and varying complexities of each Land Claims Agreement, and fostering cooperation and teamwork with OGDs that have interests and different capacities.

While government and programs strive to combat the negative challenges presented by different Inuit populations, the CF must ensure all planned missions help facilitate, empower or contribute to these initiatives. This will mean that Inuit language is encouraged and included in external communication, including Public Affairs. Policies will need to be built to encourage interaction with local business, establishing contracts for regular translation support, and setting up forward logistics depots with local support.

¹⁹⁸ Horace Miner produced a particularly thought-provoking article meant to induce humility in our western perceptions of others. Horace Miner, "Body Ritual among the Nacirema," *American Anthropologist* 58, no. 3 (June, 1956), 503-507, <http://onlinelibrary.wiley.com/doi/10.1525/aa.1956.58.3.02a00080/pdf> (accessed December 2, 2010).

¹⁹⁹ Zebedee Nungak, "Qallunaat 101," <http://www.utne.com/2004-03-01/qallunaat-101.aspx> (accessed 1/30/2011, 2011).

²⁰⁰ Friedman and Antal, *Negotiating Reality: A Theory of Action Approach to Intercultural Competence*, 76.

CF planners will have to leverage existing avenues of discussion to expand relationships to fully prepare AOPS deployments for northern activities. Recurring, large-scale exercises such as Operation NANOOK will continue under present government policy, and will address “big-ticket” issues such as practicing disaster or contingency planning (such as a Major Air Disaster (MAJAID)). Outside of these events, relationships at the operational level must continue to ensure a smooth transition of information and situational awareness to each AOPS unit and team at the tactical level.

The Canadian Rangers are productive members of communities, serving as role models and contributing to maintaining traditional Inuit skills while promoting CF goals and conducting regular patrols.²⁰¹ Canadian Rangers are free to act in other capacities in their communities, such as a business owner or leading an agency to assist in family violence. By promoting these outstanding individuals in their community, CF missions could help to develop Inuit leaders with influence outside of their respective communities. Particularly influential members could even qualify for Honorary Captain (or Colonel), bringing prestige to whatever platform of positive change they wish to support and inviting higher visibility to Inuit issues.²⁰²

²⁰¹ Lackenbauer, *The Canadian Rangers: A "Postmodern" Militia that Works*, 52 and "CBC News in Depth: Canada's North - the Rangers," Canadian Broadcasting Corporation, <http://www.cbc.ca/news/background/cdnmilitary/rangers.html> (accessed March 15, 2011).

²⁰² Honorary Colonels and Captains are meant to help bridge the broader Canadian community and the Canadian Forces. As an example for assisting in connecting CF initiatives with different cultures within Canada, new HCapt(N) Tung Chan is an active philanthropist and champion of assisting newly arrived immigrants, regardless of ancestry. His new association with the CF could help bring broader interest from Canadian demographics. Maritime Command, *Maritime Command Order (MARCORD) 3-4 Honorary Captains(N)*, Vol. 1 (Ottawa: Chief of the Maritime Staff, 2005), 1, Air Force Public Affairs, "About Us - what is an Honorary Colonel?" <http://www.airforce.forces.gc.ca/or-re/hc-ch/page-eng.asp?id=873> (accessed April 12, 2011) and Canada News Centre, "Navy Welcomes Newest Honorary Naval Captain," Government of Canada, <http://news.gc.ca/web/article-eng.do?m=/index&nid=542189> (accessed April 12, 2011).

Should the CF take training and practicing CQ seriously, there are positive second order effects that can be leveraged. The CF will develop experience and expertise for adapting to varied cultures in executing planning, training and PA plans for international or domestic operations. Well executed activities that strengthen relationships between Arctic communities and the Federal government can lead to more acrimonious dealings in all areas of northern development. PA plans that yield broad success could also contribute to the greater Canadian public having a higher level of exposure to the Inuit culture, leading to more support for development, tourism and aid programs.

CHAPTER 3 – ICE OPERATIONS

The patrolling of Arctic waters is a significant part of government and military strategic intentions. As mentioned previously, the CFDS makes specific reference to this, as does the government's Northern Strategy.²⁰³ The CF conducted regular Arctic exercises following World War II, with strategic infrastructure being built and maintained to contribute to continental defence through NORAD.²⁰⁴ Naval patrols, such as Northern Deployments (NORPLOYS) continued until 1986. Canadian ships did not return to the Arctic until 2002 when a series of exercises, dubbed Operation NARWHAL, resulted in a sporadic, seasonal Arctic presence to further contingency plans and build experience.²⁰⁵

²⁰³ Conducting regular domestic operations is the first role assigned the Canadian Forces in CFDS. Canada. Dept. of National Defence, *Canada First Defence Strategy*, 3. Canadian Forces presence through a variety of methods is listed in the Northern Strategy. Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 11.

²⁰⁴ Operations such as Musk-Ox started as early as 1945. Emmerson, *The Future History of the Arctic*, 111. The series of radar stations (Distant Early Warning (DEW), Mid-Canada and Pinetree lines) were built to contribute to NORAD. The remaining stations presently function as part of the Northern Warning System (NWS). Coates and others, *Arctic Front - Defending Canada in the Far North*, 65.

²⁰⁵ Rob Huebert, "Renaissance in Canadian Arctic Security?" *Canadian Military Journal* 6, no. 4 (Winter, 2005), 24, <http://www.journal.forces.gc.ca/vo6/no4/north-nord-eng.asp> (accessed January 19, 2011) and Canada Command, "News Release - Op NARWHAL," Canada Command, <http://www.canadacom.forces.gc.ca/nr-sp/nr-co/07-002-eng.asp> (accessed February 13, 2011).

These were carried out by both Canadian Patrol Frigates (CPFs) and Reserve-crewed Maritime Coastal Patrol Vessels (MCDVs) interacting with OGDs such as the RCMP.

The present CF capability gaps for exercising the full spectrum of possible operations expected by CFDS is well-known, with many sources and official studies providing opinions and recommendations.²⁰⁶ The initiatives listed in the government's Northern Strategy are progressing, with the Concept of Employment for AOPS seeking to address the many challenges expected of sustained operations in Canada's coastal waters and particularly the North.²⁰⁷ AOPS missions will satisfy government-level requirements for military presence to further Canadian security or sovereignty. This will chiefly occur through developing maritime domain awareness and react to potential defence of Canada requirements, but will also mirror or augment existing tasks provided to OGDs. An example is assisting the Canadian Coast Guard (CCG) with resupplying northern communities through sealift.²⁰⁸ Regardless of the list of documents assigning tasks to AOPS, they speak to broad capabilities that must be further refined and actioned at the operational level in order to result in consistent and efficient tactical success by shipboard operations. Some areas will need immediate attention for mission planning and training development. These include the expansion of northern maritime law expertise, ice navigation, the adaptation of seamanship to northern conditions and assisting other

²⁰⁶ Coates and others, *Arctic Front - Defending Canada in the Far North*, 205, Lackenbauer, *From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World*, 3 and Huebert, *Renaissance in Canadian Arctic Security?*, 27.

²⁰⁷ Assistant Deputy Minister (Policy), *ADM(Pol) Quarterly Update on DND/CF Arctic Projects*, 1-7 and Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 13.

²⁰⁸ AOPS will be able to transport up to 8 standard TEU containers on the quarterdeck. Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 22.

federal agencies in extant Arctic initiatives (such as northern Search and Rescue or hydrography).

Climate change is causing the reduction of sea ice coverage and thickness. This has brought attention to Arctic shipping routes, with three choices generally seen as available. The Northwest Passage passes through the Canadian Arctic archipelago, and is acknowledged as unlikely to be commercially viable for the near future.²⁰⁹ The Northeast Passage (or Northern Route) follows the Russian coast, and has been active with polar transits and intra-Arctic shipping in cooperation with icebreakers since the Soviet regime.²¹⁰ The transpolar route would be available in a largely ice-free Arctic Ocean, and represents the shortest distance from Asia to Europe via the North Pole. The Arctic Council's *Arctic Maritime Shipping Assessment* (AMSA) predicts an ice-free Arctic as early as 2015.²¹¹ While AMSA predictions may hold true for transpolar commercial vessels, the recent circumnavigation of the Arctic in a single season by a private yacht shows evidence that general accessibility may be available faster than foreseen.²¹² This could lead to an increase in the number of smaller vessels, including adventure/cruise ships and commercial fishing. As AOPS is not expected to be first delivered until 2015, the CF will likely face an "uphill battle" in developing experience, tailored doctrine and

²⁰⁹ Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 5.

²¹⁰ The Soviets escorted the German warship *Komet* through the Northeast Passage in 1940, 11 months before Germany attacked Russia. Emmerson, *The Future History of the Arctic*, 53.

²¹¹ B. Ellis and L. Brigham, eds., *Arctic Marine Shipping Assessment 2009*, 2nd ed. (Borsgir, Iceland: Arctic Council, 2009), 4, http://www.pame.is/images/stories/PDF_Files/AMSA_2009_Report_2nd_print.pdf (accessed November 1, 2010).

²¹² Ben Meakins, "Russian Yacht Completes Arctic Circumnavigation," *Practical Boat Owner*, <http://www.pbo.co.uk/news/507667/russian-yacht-completes-arctic-circumnavigation> (accessed February 13, 2011).

tactics, contingency and emergency plans and solid relationships with OGDs, territories and neighbouring countries to act efficiently should incidents or emergencies occur.²¹³

Canada's claim for the Northwest Passage as being sovereign, territorial waters is not recognized by other countries.²¹⁴ This is symptomatic of other areas in the high North suffering from territorial disputes. A primary task stated in the AOPS Concept of Employment is to conduct sovereignty patrols with possible interdiction operations "in support of Canadian laws."²¹⁵ While the term "sovereignty" is prevalent in the media, it is not expected that actual Canadian sovereignty is in jeopardy. Rather, the AOPS is intended to exercise sea control of the region.²¹⁶ Sea control is a function expected of all Canadian naval ships, yet acting on domestic and international law, will be a new experience.²¹⁷

LEGISLATION AND ENFORCEMENT

A report from Dalhousie University on Arctic law and governance reveals a litany of regulations, both international and domestic that CF and AOPS personnel will need to become fluent in.²¹⁸ To ensure credible environmental stewardship of the region (despite present border disputes), Canada has passed legislation for shipping in the Canadian

²¹³ Assistant Deputy Minister (Policy), *ADM(Pol) Quarterly Update on DND/CF Arctic Projects*, 1 and Project Management Office - Arctic Offshore Patrol Ship, *Schedule- Arctic/Offshore Patrol Ship Project*, 1.

²¹⁴ Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 12.

²¹⁵ Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 7.

²¹⁶ Huebert, *Renaissance in Canadian Arctic Security?*, 21. Sea Control is explained based on British Naval doctrine in *Leadmark 2020*. Directorate of Maritime Strategy, *LEADMARK: The Navy's Strategy for 2020*, 35.

²¹⁷ *Leadmark 2020* is the senior strategy document for the Canadian Navy, listing the expected functions and missions the Navy is expected to undertake. While working alongside OGDs is stated, it does not specifically drill down into exactly how the Navy shall enforce Canadian law. *Ibid.*, 97.

²¹⁸ Marine & Environmental Law Institute, *Governance of Arctic Marine Shipping* (Halifax: Dalhousie University, 2008), 1-108.

Arctic Exclusive Economic Zone (EEZ). One such measure, the Arctic Waters Pollution Prevention Act (AWPPA), specifies strict environmental regulations for the entire EEZ. Enforcement is conducted by powers conveyed to Pollution Prevention Officers.²¹⁹ Further amplification includes the Arctic Shipping Pollution Prevention Regulations and other regulations issued by Transport Canada, such as Arctic rules affecting passenger vessels.²²⁰ All provide different requirements to be abided with means enforcement and associated penalties for non-compliance.

International and government jurisdictional boundaries will also complicate routine operations. The Arctic Ocean is rife with different levels of international regulation in close proximity while offshore areas present a tapestry of OGD jurisdictions (seen in Figures 8 and 9). Avoiding frequent errors or misunderstandings will require advice to tactical command teams by experts empowered by OGD expertise.

²¹⁹ *Arctic Waters Pollution Prevention Act*, Public Law A-12, (2011): 12, <http://laws.justice.gc.ca/PDF/Statute/A/A-12.pdf> (accessed February 13, 2011).

²²⁰ *Arctic Shipping Pollution Prevention Regulations*, Public Law CRC 353, (2011): 1, http://laws.justice.gc.ca/PDF/Regulation/C/C.R.C.,_c._353.pdf (accessed March 5, 2011) and Transport Canada, *Pollution Prevention Guidelines for the Operation of Cruise Ships Under Canadian Jurisdiction*, 3rd ed. (Ottawa: Transport Canada, 2009), 1-16.

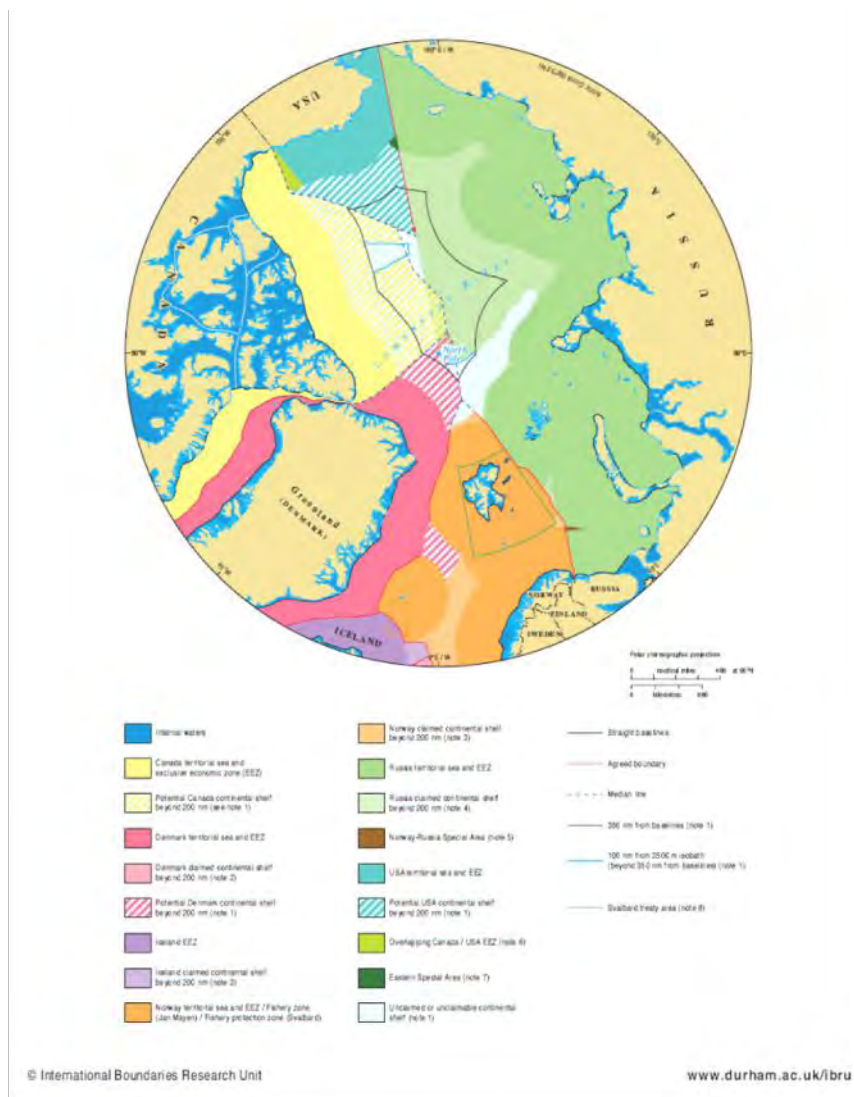


Figure 8 - Maritime jurisdiction and boundaries in the Arctic area

Source: International Boundary Research Unit.

<http://www.dur.ac.uk/resources/ibru/arctic.pdf>; Internet, accessed April 12, 2011.

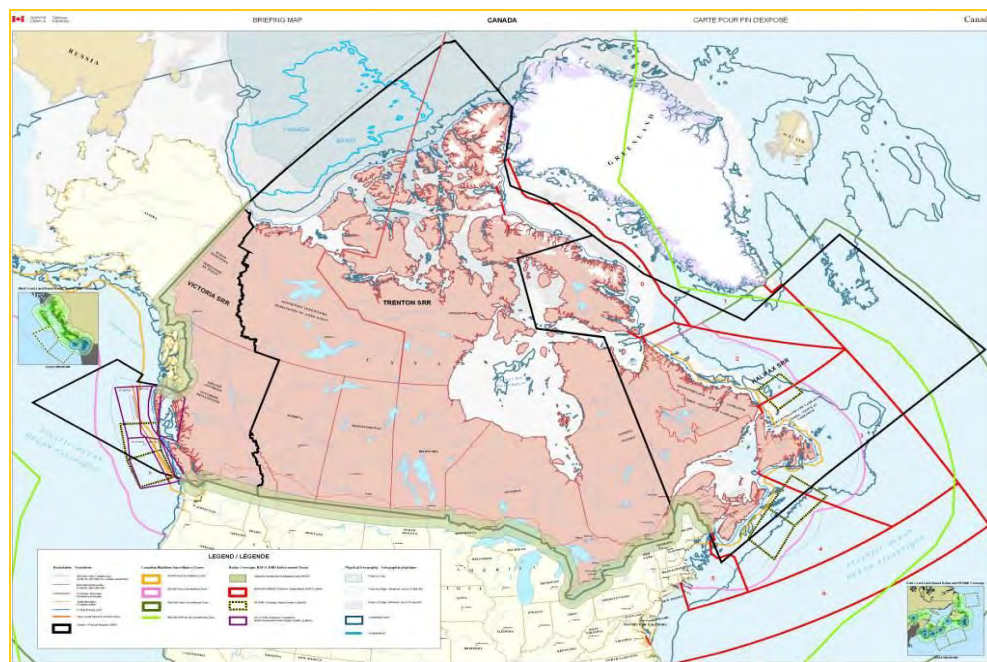


Figure 9 - Canadian government jurisdictional boundaries
 Source: Department of National Defence, 2010.

Such detailed regulation of the expected AOPS northern patrol area could lead to a generic mission described as “Surveillance and Reconnaissance,” becoming extremely multi-faceted. Specialized training or consistent partnership with onboard OGD officials may be initially required to effectively enforce Canadian Law. This would mirror regular partnering of the Canadian Navy and Department of Fisheries and Oceans (DFO), where DFO officers embark for Fisheries Patrols (FISHPATs) and utilize their assigned jurisdictional powers to conduct searches or arrests for the mission.²²¹

How often will a naval ship be called upon to intervene or penalize a vessel for infractions covered by another agency’s mandate? Having a dedicated officer (such as an

²²¹ The DND-DFO relationship is briefly summarized in Virginia Beaton, "DFO Praises Navy for Fishery Patrol Efforts," *The Maple Leaf*, sec. Navy, April 23, 2008, <http://www.forces.gc.ca/site/commun/ml-fe/article-eng.asp?id=4317> (accessed February 19, 2011). The powers provided to Fisheries Officers are derived from the *Fisheries Act*. *Fisheries Act*, Public Law F-14, (1985): 26, <http://laws.justice.gc.ca/PDF/Statute/F/F-14.pdf> (accessed February 19, 2011).

RCMP or DFO representative) embarked for every AOPS mission may prove too cumbersome for such irregular events. However, should an AOPS need to act in a constabulary role, it has already been proposed that widening naval mandates with respect to limited law enforcement could help alleviate this issue.²²²

Some European nations have provided mandates to their maritime forces for fisheries or drug interdiction.²²³ While the likelihood of a Naval ship intervening in a law enforcement role without an empowered OGD representative onboard is low, the negative public perception of a patrolling naval ship being impotent to respond to an environmental or fisheries infraction should prompt consideration by CF planners. Expanded training could provide limited empowerment to individuals, such as the Commanding Officer, to provide a “first response” to an observed legal infraction while seeking follow-on assistance for investigative and prosecutorial procedures.

The multitude of challenges identified in northern communities makes the area vulnerable to criminal enterprise. As economic surges occur in areas being developed for natural resources, it is expected that criminal activities will seek to take advantage of the situation. Infrastructure limitations will dictate that criminal elements will transit by land or sea. Several vessels linked to organized crime have already been intercepted in the Arctic based on successful intelligence cueing and international policing cooperation.²²⁴ Inter-agency cooperation through Regional Joint Operations Centres (RJOCs) has already proved successful to coordinate government responses and should continue into the

²²² Laurence M. Hickey, "Enhancing the Naval Mandate for Law Enforcement: Hot Pursuit Or Hot Potato?" *Canadian Military Journal* 7, no. 1 (Spring, 2006), 41, <http://www.journal.forces.gc.ca/vo7/no1/maritime-marin-eng.asp> (accessed March 10, 2011).

²²³ *Ibid.*, 46.

²²⁴ Northern policing challenges with examples were recently covered in a 2010 issue of the RCMP *Gazette*. Caroline Ross, "Protecting Canada's Northern Border," *RCMP Gazette* 71, no. 1 (May, 2009), 7-10, <http://www.rcmp-grc.gc.ca/gazette/vol71n1/c-prot-eng.htm> (accessed March 5, 2011).

Arctic, with AOPS capabilities being introduced to, and used in concert with, northern policing strategies and initiatives. This might require early embarkation of RCMP members to carry out arrests or investigations.²²⁵ Providing assistance to law enforcement is a stated task of the CF and the Navy has proven capable of acting with little notice or preparation. Adapting to the remoteness of the Arctic environment, lacking nearby resources or embarkation points for specialists or equipment and timely response given distances and ice coverage will be the newer challenges for operational planners and tactical operators for these missions in the North.

Naval deployments in support of law enforcement, such as the FISHPATs mentioned earlier are conducted on a scheduled basis between naval units.²²⁶ As AOPS deployments are expected to consistently follow this mission set, across all platforms, a clear understanding should be sought on the specifics of empowerment for upholding Canadian law as it pertains to crew make-up and pre-deployment training. It is commonplace for military lawyers (Judge Advocate General (JAG) officers) to deploy for domestic and international operations to advise commanders in all aspects of law.²²⁷ Though AOPS tasks have been identified to act in support of Canadian law, the specifics of how this will occur has not yet been articulated. While the Concept of Employment is specific to the AOPS platform, the missions and tasks it lists will require pervasive

²²⁵ A secret operation involving cooperation between the CF and RCMP off the coast of Angola for a significant seizure of Canada-bound drugs is a recent and stirring example, but there have been many. Virginia Beaton, "HMCS FREDERICTON Aids in Major Drug Bust," *The Trident*, <http://halifaxifc.ca/en/TheShips/Stories/FrederictonStory/tabid/126/Default.aspx> (accessed March 5, 2011).

²²⁶ Fishery Patrols are an example of an agreement with Department of Fisheries and Oceans (DFO) to provide naval units to support patrols in the Canadian EEZ to deter and prevent fish poaching. This results in clearly assigned days that must be filled in Fleet mission scheduling and planning. These and other "earmarked" mission days are directed in Appendix 1 to Annex A of: *Maritime Command, Maritime Capability Planning Guidance (MCPG) 2010 (2010/11 - 2013/14)* (Ottawa: Director General Maritime Strategy, 2009), 1-82.

²²⁷ Judge Advocate General, "Operational Law," Judge Advocate General, <http://www.forces.gc.ca/jag/oplaw-loiop/index-eng.asp> (accessed February 13, 2011).

cooperation with agencies external to the Navy (including OGDs). Training and crewing details need to be planned and completed prior to the platform's first operational deployment, expected five years hence. Operational planners should advocate for the development of Arctic maritime governance expertise in JAG, or develop relationships with another OGD that can provide a similar function. As further developments occur, such as the International Maritime Organization (IMO) issuance of the Polar Code for shipbuilding or the evolution of Canadian Arctic traffic reporting (NORDREG), CF planners and AOPS personnel will have to continue to adapt.²²⁸

NAVIGATION

The Canadian Navy has a long and successful history regarding navigation. It is a skill set that is fully incorporated into the development of Maritime Surface (MARS) officers, who act as warship Officers of the Watch (OOW), Navigating Officers (NO) and Commanding Officers (CO, or Captain). The specialized skills inherent in navigating waters with ice present will prove a new and significant challenge to CF training and operations.

Navigation training occurs in increments, with junior officers receiving courses followed by supervised, at-sea training. Consolidation comes with the officer acting as a

²²⁸ Guidelines for building and operating ships in ice-covered waters were passed by the IMO as MSC 1056 in 2002. Since then, the IMO has acknowledged that these guidelines will have to be revised and/or expanded. Transport Canada directs that shipping in Canadian waters follows IMO regulations. International Maritime Organization, "Polar Shipping Safety," International Maritime Organization, <http://www.imo.org/OurWork/Safety/SafetyTopics/Pages/PolarShippingSafety.aspx> (accessed February 21, 2011) and Transport Canada, "IMO Guidelines for Ships Operating in Polar Regions - Transport Canada," Transport Canada, <http://www.tc.gc.ca/eng/marinesafety/debs-arctic-shipping-operations-imo-2208.htm> (accessed February 21, 2011).

watchkeeper, the entire process taking approximately four years.²²⁹ Junior officers then specialize in operations to become Warfare Officers or advanced navigation to become a ship's Navigator. However, all MARS officers serving at sea are expected to retain their competency in watchkeeping, and further develop their seamanship and shiphandling knowledge to eventually qualify for Command.²³⁰

Despite having a history with icebreakers and Arctic navigation, the Navy does not have sufficient corporate knowledge to qualify the service as being ready to immediately conduct competent polar transits in ice-infested waters.²³¹ While Canadian Naval ships have conducted training exercises in northern areas (such as during annual NANOOK exercises), present Canadian warships cannot withstand damage from ice collision and thus training occurs during seasons with ideal conditions.²³² The AOPS will introduce capabilities that have not been practiced or achieved by the Canadian Navy, such as the ability to berth with floating ice floes.²³³ Within the Canadian seafaring community, the acknowledged ice navigating expert is the CCG.

²²⁹ Canada. Department of National Defence, *A Career as an Officer - Maritime Surface and Sub-Surface* (Ottawa: Canadian Forces, 2010), 2.

²³⁰ Maritime Command, *Maritime Command Order (MARCORD) 9-23 Maritime Surface and Sub-Surface (MARS) Professional Qualifications*, Vol. 1 (Ottawa: Chief of the Maritime Staff, 2008), 2 and Maritime Command, *Maritime Command Order (MARCORD) 9-50 Sea Command and Charge Qualifications*, Vol. 1 (Ottawa: Chief of the Maritime Staff, 2010), 3.

²³¹ HMCS *Labrador* was the Canadian Navy's first (and only) icebreaker, commissioned in 1954. It was intended to patrol the Northwest Passage, service the DEW Line and act as a platform for scientific research. Upon the formation of the Canadian Coast Guard, it was transferred to the CG to act as its first icebreaker. Coates and others, *Arctic Front - Defending Canada in the Far North*, 86.

²³² Canada Command Public Affairs, "Canada Command - OP Nanook 2010," Canada Command, <http://www.canadacom.forces.gc.ca/daily/archive-nanook10-eng.asp?#030810> (accessed February 28, 2011).

²³³ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 118.

A CCG core task is to provide icebreaking services in the North and other ice-prone areas. While patrolling the North, they also respond to Search and Rescue (SAR) incidents, cooperate with scientific research work and resupply northern communities.²³⁴

Despite generally receding sea ice trends, the presence of ice in the Arctic regions will continue to pose challenges for mariners and require specialized knowledge in ice navigation for the foreseeable future.²³⁵ Even well-experienced navigation specialists in regular ocean environments need additional training to account for weather and ice conditions that could combine to thwart the best laid passage plans.²³⁶ Until recently, the international guidelines for Arctic navigation have been loosely defined, even on what an Ice Navigator should be trained to do. Canadian legislation was more robust, and became an example for the international community to follow.²³⁷ Transport Canada initiatives have resulted in the evolution of Ice Navigation training and seek international adoption.²³⁸

Present Canadian legislation requires Ice Navigators be qualified to act as the Master of a vessel, with at least 30 days operating in ice conditions.²³⁹ Preparatory

²³⁴ Canadian Coast Guard, "About Canadian Coast Guard Services," Department of Fisheries and Oceans (DFO), http://www.ccg-gcc.gc.ca/eng/Ccg/wm_About_Ccg (accessed February 19, 2011).

²³⁵ Canadian Cryospheric Information Network, "Historical Variability of Sea Ice," University of Waterloo, <http://www.ccin.ca/cms/en/socc/sealce/pastSealce.aspx> (accessed March 5, 2011) and Adrienne Tivy and others, *Canadian Ice Service Digital Archive (CISDSA): Trends and Variability in Summer Sea Ice Cover 1968-2008* (Ottawa: Environment Canada, [2008]), <http://soa.arcus.org/sites/soa.arcus.org/files/sessions/2-1-observations-arctic-change/pdf/tivy.pdf> (accessed March 5, 2011).

²³⁶ David Snider, *Ice Navigation in the Northwest Passage* (Rimouski: Martech Polar Consulting, Ltd., 2005), 1.

²³⁷ Oystein Jensen, *The IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?* (Lysaker, Norway: Fritjof Nansen Institute, 2007), 25 and Ellis and Brigham, *Arctic Marine Shipping Assessment 2009*, 8.

²³⁸ Snider, *Ice Navigation in the Northwest Passage*, 3.

²³⁹ Canada. Department of Justice, *Arctic Shipping Pollution Prevention Regulations*, 14.

courses for the fundamentals of ice navigation are one to two weeks in duration.²⁴⁰

History has shown, however, that years of experience is necessary for an Ice Navigator to properly respond to any and all challenges one might be faced with in ice-infested areas, with little or no emergency response expected. Ulf Ryder, president of Stena Bulk which transports oil in Arctic regions, has said, “it takes as long to train an Ice Master as it does a brain surgeon.”²⁴¹ Given the timeframe expected for the first AOPS to arrive, the Canadian Navy must seek to incorporate ice navigating and shiphandling expertise into the MARS officer corps.

Naval Officer Training Centre (NOTC) *Venture* is the Navy’s primary school for navigation. There are ongoing initiatives for the development of ice navigation training, though still in initial stages. A significant, recurring challenge to the Navy is the regular turnaround in personnel on any given warship.²⁴² While merchant mariners are free to pursue a lengthy career onboard a given platform in a specific environment, typical MARS officers only spend 18-24 months in a specific post onboard a warship. Given that Ice Navigation is a skill, to varying degrees, required of all levels of watchkeeper in civilian circles, it will be a challenge for the Navy to provide training for a specialized platform to all bridge officers without creating a specialty stream (that may be career limiting within the larger Fleet)²⁴³ or by adopting some risk from regular turnovers of

²⁴⁰ Schools accredited to provide Transport Canada approved training is provided on the Transport Canada website. An example of an Ice Navigation Course schedule is taken from Memorial University. Centre for Marine Simulation, "Training Schedule- Fundamentals of Ice Navigation Course," Memorial University of Newfoundland, http://www.mi.mun.ca/cms/tentative_schedule.htm#ice_navigation (accessed March 5, 2011).

²⁴¹ Ulf Ryder, quoted in Snider, *Ice Navigation in the Northwest Passage*, 2.

²⁴² This turnaround is normal and expected. It occurs in all departments, at all rank levels. Typical examples are personnel being sent on training courses, being posted due to promotion or attainment of a higher level of qualification or to fill a shortfall in another organization or unit.

²⁴³ Current specialty streams already exist in the MARS officer trade, such as Clearance Diving officers or Subsurface (submarine) officers. Should a specific “stream” of ice navigating MARS officer be adopted

personnel.²⁴⁴ How prospective Commanding Officers (Captains or Masters) will arrive at a suitable competence for supervising the watchkeepers while still providing a higher level of ice navigation insight will be the hardest challenge faced in the present five year time line for AOPS delivery.

How to maintain corporate competency in ice navigation will not be covered in this paper as it is a highly strategic issue on the Navy's part. Two areas that will need to be improved and monitored closely are lessons learned and the development of doctrine, specifically pertaining to shiphandling in ice. These will mitigate loss of corporate experience inherent in the regular turnover of personnel.

Canadian shiphandling theory for major classes of ships is contained in the Canadian Navigation Manual (CNM).²⁴⁵ Operators can provide insight and experience from challenging evolutions in the Navy's Professional Notes (PRONOTES). However, PRONOTES are poorly maintained, possibly due to administrative requirements or lack of corporate embrace. Regardless, there exists already-established means for MARS officers to develop ice navigation techniques that senior staff and planners must enforce to ensure efficient and substantive turnovers of information. Despite the academic merit of these systems, it will also assist in avoiding embarrassing accidents or mistakes that could have been avoided based on a previous ship's team or captain's experience.

would make cross-training to a warship a significant challenge to the individual later in his or her career. A primary example is based on the AOPS not having any inherent warfighting capabilities beyond security or constabulary roles. Should a MARS officer transfer to a warship, there would be a significant learning deficiency (and corresponding curve) to achieve competency in these areas.

²⁴⁴ It has been recommended that different levels of accreditation exist for Ice Navigation, testing competencies to stand a regular bridge watch (Officer of the Watch), supervising the training and performance of watchkeepers (Senior Watchkeeper) and serving as Master of an ice-going vessel (Master). *Ibid.*, 3.

²⁴⁵ Naval Officer Training Centre VENTURE, *CFCD 130 Canadian Navigation Manual*, 2nd ed. (Victoria: Maritime Command, 2010), 112.

Training developers have much to leverage in seeking efficient and productive means to introduce an initial cadre of ice-qualified MARS officers. NOTC has indigenous simulation equipment that could be upgraded to reproduce ice navigation requirements, but may face fiscal (and/or time) restraints.²⁴⁶ It may thus behoove planners to investigate Arctic seafaring nations, where immediate opportunities exist to learn from established training courses. The longer-term endstate would then be a Canada-based program, built on international experience and invested in technology. While past ice navigation courses were largely ad hoc, heightening interest and the pervasive environmental stewardship practices have resulted in more developed curriculums.²⁴⁷ Norway has developed a curriculum that complies with Det Norske Veritas (a global risk assessment firm) standards.²⁴⁸ Enfotec, a Montreal-based company, provides training options and corporate experience in ice navigation.²⁴⁹ Having literally “written the book” on shiphandling and navigating in ice, the CCG College offers ice navigation courses for skills used by the CCG in the North.²⁵⁰ While likely small in number, there may be sufficient interest for some MARS officers to participate in extended exchanges in CCG ships to develop a level of expertise necessary to provide

²⁴⁶ NOTC Venture utilizes simulators developed by Kongsberg Maritime, which also possesses experience in Ice Simulation equipment. "Simulator News - New Ice-Navigation Training Centre," Kongsberg Maritime, <http://www.km.kongsberg.com/ks/web/nokbg0238.nsf/AllWeb/57A4C9F1718BE271C12575F200291FC6?OpenDocument> (accessed January 20, 2011).

²⁴⁷ Ellis and Brigham, *Arctic Marine Shipping Assessment 2009*, 63.

²⁴⁸ "World's First Certified Ice Navigation Training Course," The Motorship, <http://www.motorship.com/news101/worlds-first-certified-ice-navigation-training-course> (accessed January 20, 2011).

²⁴⁹ "Fednav Group | Enfotec," Fednav Group, http://www.fednav.com/anglais/group_enfotec.html (accessed March 6, 2011).

²⁵⁰ The Canadian Navigation Manual's section for Polar Navigation is presently only five pages long, and heavily cites doctrine from the Ice Navigation in Canadian Waters, a CCG document. Canadian Coast Guard, *Ice Navigation in Canadian Waters* (Ottawa: Department of Fisheries and Oceans (DFO), 1999), 219, <http://www.ccg-gcc.gc.ca/e0010696> (accessed February 05, 2011).

future training. When AOPS is launched, the embarkation of Ice Navigator-qualified CCG personnel to act as advisors may be a suitable means to initiate safe navigation while consolidating initial training.²⁵¹

CF operational planners will need to be mindful of the junior nature of Canadian Naval ice navigation skills when planning initial operations. Sufficient time periods should be allowed to permit AOPS teams to challenge ship's teams, progress experience in AOPS capabilities and develop ice navigational techniques. Supervised lessons-learned practices will speed Canadian Naval competency in the Arctic environment, permitting more advanced evolutions and proper reactions to unforeseen events. Finally, it must be acknowledged that despite the core skills needed for safe Arctic operations, AOPS MARS officers will experience a gradual atrophying of warfare skill sets required in other Canadian warships. These include competently responding to complex traffic situations, or warfare-related weapons and sensor techniques that cannot be practiced in remote areas with a minimal conventional threat and the absence of exercise support assets.

CHARTS AND SURVEYS

In addition to the general challenges of ice navigation is the regular consideration that the Arctic Ocean is sparsely charted. The Canadian Hydrographic Service (CHS) chart catalogue may show a comprehensive chart coverage of the Canadian Arctic, the

²⁵¹ When the US Coast Guard Cutter (USCGC) *Healy* departed for her maiden voyage, she carried numerous experts from a variety of nations (including Canada) and agencies to help introduce the crew to the varied aspects of Arctic operation. Jeffrey M. Garrett, "Science and Innovation in the Arctic," *U.S. Naval Institute Proceedings* 128, no. 1 (January, 2002), 68, <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=6016939&site=ehost-live> (accessed January 24, 2011).

CCG Ice Navigation manual warns only 22% of charts have sufficient accuracy to be used with GPS, and that bathymetry has often derived from random vessel tracks.²⁵²

Figure 10 superimposes Canadian chart coverage with areas of hydrographically acceptable data. Datum errors create large disparities between adjoining charts and poor Arctic hydrographic quality is not limited to within Canadian borders.²⁵³ Older charts that are incompatible with automatic positioning systems are often charted in gnomonic projection, which is meant to overcome the difficulties inherent in high latitudes.²⁵⁴ Exposure to gnomonic projections is generally limited to polar regions and thus not a widespread skill among the navigating officer community.

²⁵² The CHS catalogue displays charts for all Arctic waters, with numbers also corresponding to digital nautical charts (DNC). Canadian Hydrographic Service, *Catalogue 4 - Arctic* (Ottawa: Department of Fisheries and Oceans (DFO), 2008), 1-2. Stated percentages current to 1997. Canadian Coast Guard, *Ice Navigation in Canadian Waters*, 123.

²⁵³ Snider, *Ice Navigation in the Northwest Passage*, . and Michael Henderson, "Arctic Navigation," *Sidelights* 40, no. 5 (December, 2010), 18, http://www.mastermariner.org/sidelights/Sidelights_December2010.pdf (accessed February 05, 2011).

²⁵⁴ Canadian Coast Guard, *Ice Navigation in Canadian Waters*, 121.

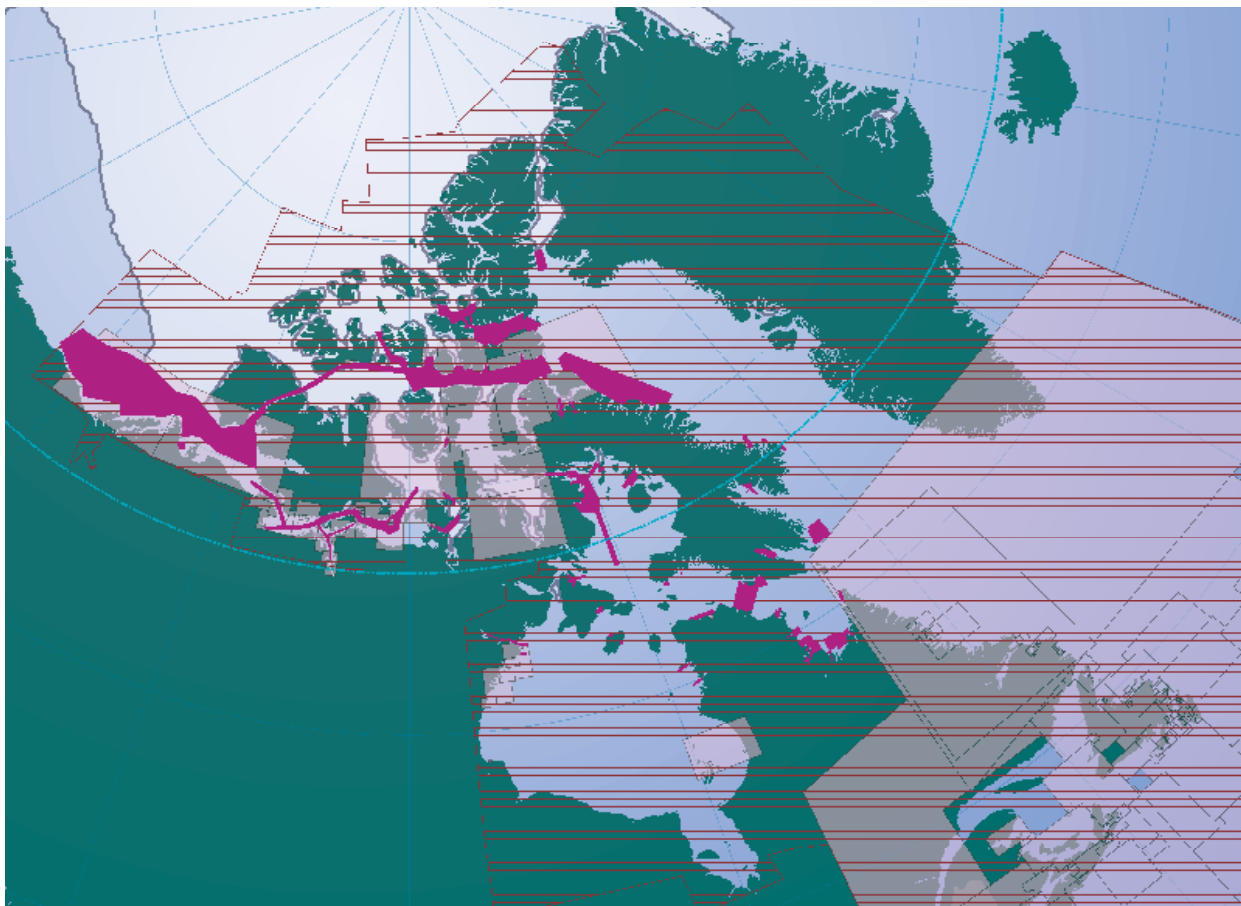


Figure 10 - Canadian Charting and Survey status (purple area shows hydrographically acceptable data)

Source: Ellis, *Arctic Marine Shipping Assessment 2009*, 159.

CHS recognizes the emerging requirements for expanding Arctic charting data, and has identified high risk areas to target. Present hydrographic charting is largely accomplished with multi-beam sonar systems, and in Arctic environments, these are usually deployed from a small boat.²⁵⁵ Surveys requiring icebreaking resources are conducted in cooperation with the CCG such as the recent joint US/Canada effort to

²⁵⁵ Canadian Hydrographic Service, *National Report to the Arctic Regional Hydrographic Commission*, Ottawa, Canada, October 4-6, 2010 (Ottawa: Department of Fisheries and Oceans (DFO), [2010]), http://www.iho-phi.net/mtg_docs/rhc/ArHC/ArHC1/ArHC1-02A_National_Report_Canada.pdf (accessed March 5, 2011).

explore the Beaufort Sea.²⁵⁶ Canada is also a leading member of the newly-formed Arctic Regional Hydrographic Commission (a subset of the International Hydrographic Commission), where more cooperative ventures can be brokered to fast-track surveys to ensure safe Arctic shipping.²⁵⁷

Besides charts, documents called *Sailing Directions* or *Coastal Pilots* provide additional detail necessary for thorough passage planning.²⁵⁸ As with Arctic charts, Northern *Sailing Directions* require regular upkeep and are presently sparse on coverage. Contributing to these publications would not require a marked departure from normal Naval operating procedures. Specifically for ports, the Canadian Navy maintains a specialized folio of port information based on the specific needs of warships.²⁵⁹ Any information gathered to update these Naval documents could be modified to satisfy the requirements of *Sailing Directions*. Photographic assignments can be conducted by members trained in intelligence collection or Boarding Operations.²⁶⁰ If areas of priority for *Sailing Direction* upkeep were advertised, CF operations could make simple yet worthwhile contributions. Dedication to improving navigation supplements would assist

²⁵⁶ This is an example of cooperation amongst Arctic Council nations to peacefully seek arbitration of disputed territories. The data gained in a joint venture will thus be acknowledged by both sides when presented to the IMO to rule on the disputed area of the Beaufort Sea. United States Department of State, "Statement on U.S.-Canada Joint Arctic Survey Mission," United States Department of State, <http://www.america.gov/st/texttrans-english/2010/July/20100727130745su0.1402966.html> (accessed February 19, 2011).

²⁵⁷ International Hydrographic Organization, "Arctic Regional Hydrographic Commission (ARHC) / (CHRA)," International Hydrographic Organization, <http://www.ihp-net.org/english/committees-wg/ircc/regional-hydrographic-commissions/arctic-hc-arhc-chra.html> (accessed February 19, 2011).

²⁵⁸ This includes aerial photography for landmark identification, climate, port information, local regulations and safety concerns. Canadian Hydrographic Service, "CHS - Sailing Directions," Department of Fisheries and Oceans (DFO), <http://www.charts.gc.ca/publications/sd-in/sd-in-eng.asp> (accessed March 3, 2011).

²⁵⁹ Maritime Command, *Maritime Command Order (MARCORD) 42-10 Port Information Book*, Vol. 3A (Ottawa: Chief of the Maritime Staff, 2007), 1-2.

²⁶⁰ Director Maritime Policy and Operational Readiness, *CFCD 108 Maritime Command Boarding Operations Manual*, 2nd ed. (Ottawa: Maritime Command, 2010), 142.

in inter-government cooperation and provide positive Public Affairs opportunity with the CF being seen to actively assist in expanding Arctic navigation safety.

Regular AOPS presence in the North presents an opportunity for cooperation between CHS and the CF to assist in improving navigational safety for all northern mariners. Side-scan sonar skill sets are resident in the Canadian Navy, and could assist in CHS efforts to expand chart coverage.²⁶¹ Cooperation in using underwater sonar technology already occurs between the CF, DFO (CHS' parent agency) and CCG at the Bedford Institute of Oceanography.²⁶² Tailored training or the embarkation of CHS specialists would ensure results were compatible with necessary standards for hydrographic data. Sharing archived echo sounder information can also assist in improving Arctic charting. As early charts displayed bathymetry derived from individual ship soundings, many Arctic charts still utilize this information.²⁶³ AOPS echo sounders could be augmented with data recording technology that pair positioning information with soundings. Should AOPS transit an area with sparse bathymetry, simply patrolling the area can help increase hydrographic information without impacting planned operations.

²⁶¹ Side scan expertise is primarily resident in the Naval Reserve. Outside of operational taskings, this operational expertise has already been used to further scientific research. Naomi Belleau, "Canadian Navy: Operations & Exercise: TRINITY's "Fiona" Takes the Plunge in Search of Avro Arrow," Maritime Command, http://www.navy.forces.gc.ca/cms/4/4-a_eng.asp?category=12&id=193 (accessed March 6, 2011).

²⁶² Bedford Institute of Oceanography, "About BIO," Bedford Institute of Oceanography, <http://www.bio.gc.ca/about-sujet-eng.htm> (accessed March 6, 2011).

²⁶³ United Kingdom. Commander in Chief Fleet, *Admiralty Manual of Navigation (BR45)*, 2nd ed., Vol. 1 (Fareham: Operational Publications Authority, 2008), 139.

Conducting unplanned hydrographic surveys is a skill taught to navigators.²⁶⁴ Canadian Navigating Officers will likely face a scenario where they must confirm (or ascertain) soundings for a jetty or anchorage areas, and need to draw on this doctrine. It should be encouraged (or expected) that this data be consolidated in a professional manner and be forwarded to CHS. While manpower intensive, proper attention to detail and honest interpretation of data will positively assist in expanding Navigating Officers' experience and improve data for seldom visited harbours or anchorage areas.

A Memorandum of Understanding (MOU) with CHS is already in place to share high resolution bathymetry obtained by CHS for marine survey and security purposes.²⁶⁵ This relationship could be expanded to allow information to flow both ways; information obtained by the Navy in the conduct of their duties could be shared with CHS for chart improvement purposes. The DFO/CF/CHS relationship is an example of one that is already established for specific reasons, and could be further expanded. This will lead to developing mechanisms and doctrine for furthering Arctic hydrographic research in parallel to assigned AOPS missions.²⁶⁶

While the lack of Arctic charts poses a general risk to Arctic shipping and AOPS operations, it also poses an opportunity for the CF to work closely with CCG and CHS agencies in promoting better maritime safety while expanding and improving on skills already taught in the Naval training stream.

²⁶⁴ United Kingdom. Commander in Chief Fleet, *Admiralty Manual of Navigation (BR45)*, 2nd ed., Vol. 1 (Part 2) (Fareham: Operational Publications Authority, 2008), 267.

²⁶⁵ Canada. Department of National Defence, *Memorandum of Understanding between the Department of National Defence and the Department of Fisheries and Oceans Concerning High Resolution Bathymetry Collection* (Halifax: Department of National Defence, 2005), 1-3.

²⁶⁶ Assisting CHS could coincide with one of AOPS' primary missions in "Assisting OGDs," with seabed data possibly being valuable for surveillance purposes. Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 8.

SEARCH AND RESCUE

SAR support is a federal government mandate. An interagency affair, SAR is coordinated daily from regional operations centres through regular training and common doctrine.²⁶⁷ Countries are responsible for various zones of the world to cover, and within Canada, regions are overseen by three Joint Rescue Coordination Centres (JRCC), as seen in Figure 11.²⁶⁸ Arctic SAR, despite direction in CFDS, is presently a challenge to Canada (and the CF) due to lack of infrastructure, community response capacity, and capability gaps.²⁶⁹ International assistance and synergy is an obvious way to help mitigate these deficiencies, and an international SAR treaty is being pursued by the Arctic Council for 2011 ratification. Regardless of outside efforts, Canada must remain committed to improving indigenous emergency response capabilities.²⁷⁰

²⁶⁷ SAR duties vary depending on the specific situation and scope of the response necessary. Agencies and departments span municipal to federal jurisdictions. Canada Command, "Canadian Forces Search and Rescue," <http://www.canadacom.forces.gc.ca/sar-res/SAR-BG09001-eng.asp> (accessed February 27, 2011).

²⁶⁸ The IMO divided the world's oceans into maritime SAR zones as part of the International Convention on Maritime Search and Rescue, 1979. International Maritime Organization, "International Convention on Maritime Search and Rescue (SAR)," International Maritime Organization, [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Maritime-Search-and-Rescue-\(SAR\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Maritime-Search-and-Rescue-(SAR).aspx) (accessed April 14, 2011). Canada is a signatory, seen at: <http://www.treaty-accord.gc.ca/details.asp?id=104071>.

²⁶⁹ Canada. Dept. of National Defence, *Canada First Defence Strategy*, 7.

²⁷⁰ Chris Windeyer, "Search and Rescue Treaty could Save Lives, Boost Arctic Council: Experts," Nunatsiaq Online, http://www.nunatsiaqonline.ca/stories/article/01091search_and_rescue_treaty_could_save_lives_boost_arctic_council_experts/ (accessed March 7, 2011).

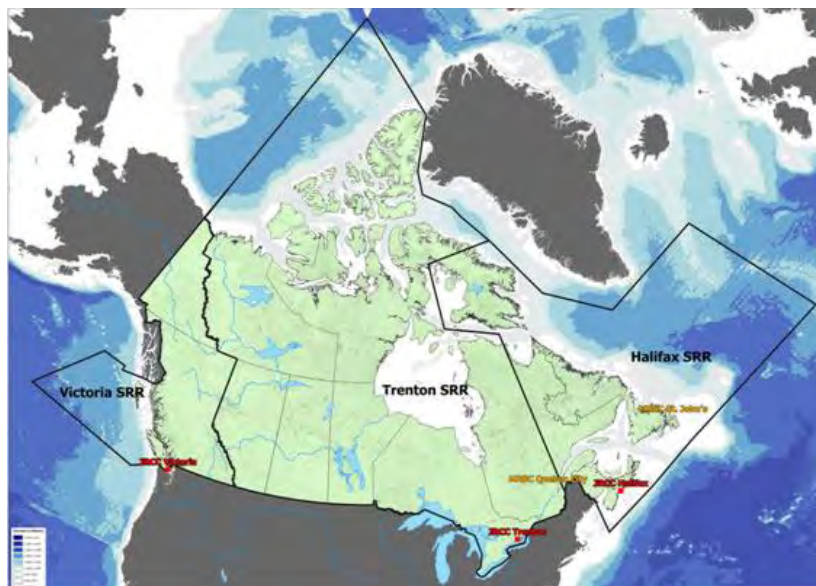


Figure 11 - Canada SAR Zones

Source: Canada Command. "Canadian Forces Search and Rescue – Mandate." <http://www.canadacom.forces.gc.ca/daily/archive-sar-eng.asp?#021110>; Internet, accessed March 28, 2011.

Receding sea ice is presenting navigational possibilities to mariners who may not have sufficient experience or expertise to safely transit Arctic waters.²⁷¹ While accident rates have steadily decreased, longer navigation seasons for new ship traffic makes accident prevention measures all the more critical. This has prompted the government seeking mandatory reporting zones (NORDREG) and demanding adherence to Polar Codes for ship design and operation.²⁷² Nevertheless, as private interests increase their presence in the Arctic region, organizations charged with monitoring these regulations may not receive funding commensurate to the increase in operational tempo.²⁷³ The government is committed to improving navigation safety, but will still need actual

²⁷¹ Brad Judson, *Trends in Canadian Arctic Shipping Traffic - Myths and Rumours* (Mountain View, CA: The International Society of Offshore and Polar Engineers (ISOPE), 2010), 2.

²⁷² *Ibid.*, 6.

²⁷³ "Arctic Ship Rules Keep Iqaluit Coast Guard Busy," Canadian Broadcasting Corporation, <http://www.cbc.ca/canada/north/story/2010/07/14/arctic-nordreg-coast-guard.html> (accessed January 27, 2011).

“responders” to any significant incident in the area.²⁷⁴ As AOPS operations will not commence until after 2015, this again represents an area where AOPS crews may face a steep learning curve for assisting OGDs in fulfilling Government mandates.

Arctic accidents, while statistically decreasing, remain a significant issue as groundings represent a growing proportion of incidents.²⁷⁵ Arctic groundings alone represent significant challenges for SAR efforts and potential threats to the environment. Arctic tourism affordability and interest continues to increase, with passenger volumes exceeding the capabilities of local communities and infrastructure to adequately respond to an emergency.²⁷⁶ There are currently no salvage tugs or prepositioned pollution response equipment to act in the event of even a minor environmental incident, which could cause significant effects to the Arctic Ocean.²⁷⁷

Two recent incidents highlight these issues. In September 2009, the diesel-carrying tanker Motor Vessel *Nanny* ran aground on a sandbar and remained incapacitated for over two weeks.²⁷⁸ The vessel was a regular operator in the North and its double-hull was not punctured. However, it required a second tanker to be sent to its location in order to remove sufficient cargo from its hold to allow MV *Nanny* to float

²⁷⁴ Jessica Murphy, "Arctic to Get New Weather, Shipping Service," Toronto Sun, <http://www.torontosun.com/news/canada/2011/02/22/17368931.html> (accessed February 23, 2011). and "Canada Beefs Up Arctic Weather Tracking," France 24, <http://www.france24.com/en/20110222-canada-beefs-arctic-weather-tracking> (accessed February 23, 2011).

²⁷⁵ Arctic groundings have steadily increased to represent over a quarter of all vessel casualties, as of 2008. Judson, *Trends in Canadian Arctic Shipping Traffic - Myths and Rumours*, 5.

²⁷⁶ Some cruise liners making Arctic voyages carry in excess of a thousand passengers. Ellis and Brigham, *Arctic Marine Shipping Assessment 2009*, 84.

²⁷⁷ Snider, *Ice Navigation in the Northwest Passage*, 8. CCG and Canadian Naval units bring pollution booms and have indigenous capabilities to combat fuel oil spills within reason, so long as they are able to adequately respond.

²⁷⁸ "Northwest Passage Tanker Freed from Sandbar," Canadian Broadcasting Corporation, <http://www.cbc.ca/news/canada/north/story/2010/09/15/northwest-passage-tanker-nanny.html> (accessed February 27, 2011).

free.²⁷⁹ No other systems for pollution prevention were deployed. Future incidents could not only involve punctured hulls, but also any assisting ship with poor environmental diligence could have resulted in pollution. In August 2010, the adventure cruise liner *Clipper Adventurer* ran aground and stranded 128 passengers for three days.²⁸⁰ The nearest ship to respond was a CCG ship 500 kilometres away. Should the incident have been more severe, the response time of the nearest other vessel could have been significant. While the responding CCG ship can accommodate 100 people, the complement carried by some northern cruise ships is over six hundred.²⁸¹ The rising capacity of cruise ships was considered in possible emergency scenarios tabled by AMSA and should be considered by CF planners.²⁸² Both incidents involved navigational obstructions that were correctly charted.²⁸³ Comparing vessel casualties shown in Figure 12 with areas covered by modern charts seen in Figure 10 will show a significant number of vessel casualties still occurring in suitably-charted areas.

Responding to groundings presents an additional argument for the regular carriage of side-scan sonar equipment. After seeing to the stricken passengers in the *Clipper Adventurer*, the CCG ship deployed a portable system to ensure an accurate, supplemental survey was conducted.²⁸⁴

²⁷⁹ "Grounded Arctic Tanker Tries to Lighten Load," Canadian Broadcasting Corporation, <http://www.cbc.ca/news/canada/north/story/2010/09/13/nwpassage-tanker-refloat.html> (accessed February 27, 2011).

²⁸⁰ "Grounded Cruise Ship Hit a Charted Hazard," Siku Circumpolar News Service, <http://www.sikunews.com/News/Canada-Nunavut/Grounded-cruise-ship-hit-a-charted-hazard-7969> (accessed February 19, 2011).

²⁸¹ Ellis and Brigham, *Arctic Marine Shipping Assessment 2009*, 79.

²⁸² *Ibid.*, 180.

²⁸³ Navigation based on correctly updated charts is a basic navigational practice. Failure to do so represents negligence and is in contravention of federal regulations. *Charts and Nautical Publications Regulations, 1995*, Public Law SPR/95-149, (1995): 8, <http://laws.justice.gc.ca/PDF/Regulation/S/SOR-95-149.pdf> (accessed March 5, 2011).

²⁸⁴ *Grounded Cruise Ship Hit a Charted Hazard*, 2.

The regular occurrence of human error in navigating the challenging waters of the Arctic will be an enduring risk, defying the regulations for pollution and vessel traffic regimes.²⁸⁵ Poorly managed or inexperienced private operators in the Arctic should be a concern to the CF and OGDs. Transport Canada records show a large proportion of accidents during periods of resource exploration or exploitation caused by hired tugs and research vessels.²⁸⁶ This statistic may reoccur as Arctic resources become more accessible. To be poised to respond anywhere in the archipelago, present projections require over five AOPS operating simultaneously. This will enable a ship to be within 5 days of response to any area of Canada's Arctic EEZ.²⁸⁷ In order to balance risk with having a readily available asset in place, there will have to be a shared responsibility between the CF and CCG, with regular fusion of SA between the two agencies.

Skill sets for Arctic SAR and pollution response are based on those presently practiced by the larger Canadian navy. West Coast units regularly deploy to support CCG efforts in maintaining prepositioned units to respond to SAR in remote coastal areas.²⁸⁸ However, Arctic climate, remote positions and the presence of limited resources and ice will necessitate an expansion of equipment lists, doctrine and standard operating procedures (SOPs).²⁸⁹ A CF asset in the vicinity of a stricken vessel could draw considerable media attention, a second order incentive for proper training and

²⁸⁵ Judson, *Trends in Canadian Arctic Shipping Traffic - Myths and Rumours*, 6.

²⁸⁶ *Ibid.*, 4.

²⁸⁷ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 11.

²⁸⁸ Appendix 2 to Annex A of the MCPG 2011 directs sea days to be exclusively used for CCG cooperation. Maritime Command, *MARCOM Capability Planning Guidance 2011 to 2014* (Ottawa: Director General Maritime Strategy, 2010), 34.

²⁸⁹ Canadian Navy seamanship practices are codified in CFCD 105. Environmental and pollution response practices are contained in Environmental Management Systems (EMS) specific to each class of ship.

preparations.²⁹⁰ Operational planners must allocate sufficient opportunities not only to ensure AOPS crews “break new ground” in adapting SOPS for SAR, fuel spill response, casualty evacuation and towing, but also to internalize and disseminate these lessons to other AOPS units through a robust lessons learned program. Cooperation and support from all levels of the Navy will be required, with towing acting as a good example. Standing direction for Canadian naval ships to provide towing services to stricken vessels is contained in a Maritime Command Order (MARCORD) that summarizes external legislation and regulations (such as the *Canada Shipping Act*).²⁹¹ While the order is itself straightforward, a Canadian warship providing towing services is seldom done, and is not expected to be a standard practice for a CPF. Since the AOPS is likely to respond to more casualties in its intended operating area where groundings are more frequent, (see Figure 12), towing policies may require revisiting to account for an expended increase in towing services being offered by the CF. Consistency in service with the CCG should be sought. A Coast Guard Fleet Circular banning towing manned vessels in ice is a good example of CCG lessons learned that the CF should seek to capitalize upon.²⁹² Striving for consistency of seamanship services will facilitate CF cooperation with the CCG and quickly expand AOPS SOPs.

²⁹⁰ The tone of the following news article shows little faith in government preparedness. A critical incident could bring significantly negative media coverage should credible (and noticeable) means to improve rescue conditions not take place. Tobi Cohen, "Canadian Rescue Capacity Questioned in Wake of Arctic Ship Grounding," Vancouver Sun, <http://www.vancouversun.com/news/Canadian+rescue+capacity+questioned+wake+Arctic+ship+grounding/3457291/story.html> (accessed February 19, 2011). Even at the territorial level, calls are being made for improved means to monitor and control shipping. *Greenland, Nunavut Want Arctic Protection*, 1.

²⁹¹ Maritime Command, *Maritime Command Order (MARCORD) 42-06 Towing Services, Wrecks and Derelict Vessel*, Vol. 1 (Ottawa: Chief of the Maritime Staff, 2009), 2.

²⁹² Canadian Coast Guard, "Fleet Circular 07-2008 Suspension of the Towing of Small Vessels with Persons Onboard while in Ice," Canadian Coast Guard, <http://www.ccg-gcc.gc.ca/e0004174> (accessed March 7, 2011).

Should destination shipping and Arctic tourism trends continue to increase as predicted, CF operations will have to coordinate with other government agencies to assist in planning patrol areas.²⁹³ Transport Canada tracks shipping trends and can provide insight into areas to focus on for specific periods of the year (as seen in Figure 12). The CCG maintains a regular Arctic presence while conducting community resupply and icebreaking services.²⁹⁴ These tasks fall within the primary tasks assigned to AOPS (save icebreaking), but would require coordinating patrols and vessel placement with the CCG (potentially based on areas of high traffic or high risk for vessel casualties) to maximize efficient response.²⁹⁵

²⁹³ Ellis and Brigham, *Arctic Marine Shipping Assessment 2009*, 118.

²⁹⁴ Canadian Coast Guard, *About Canadian Coast Guard Services*, 3.

²⁹⁵ Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 7.

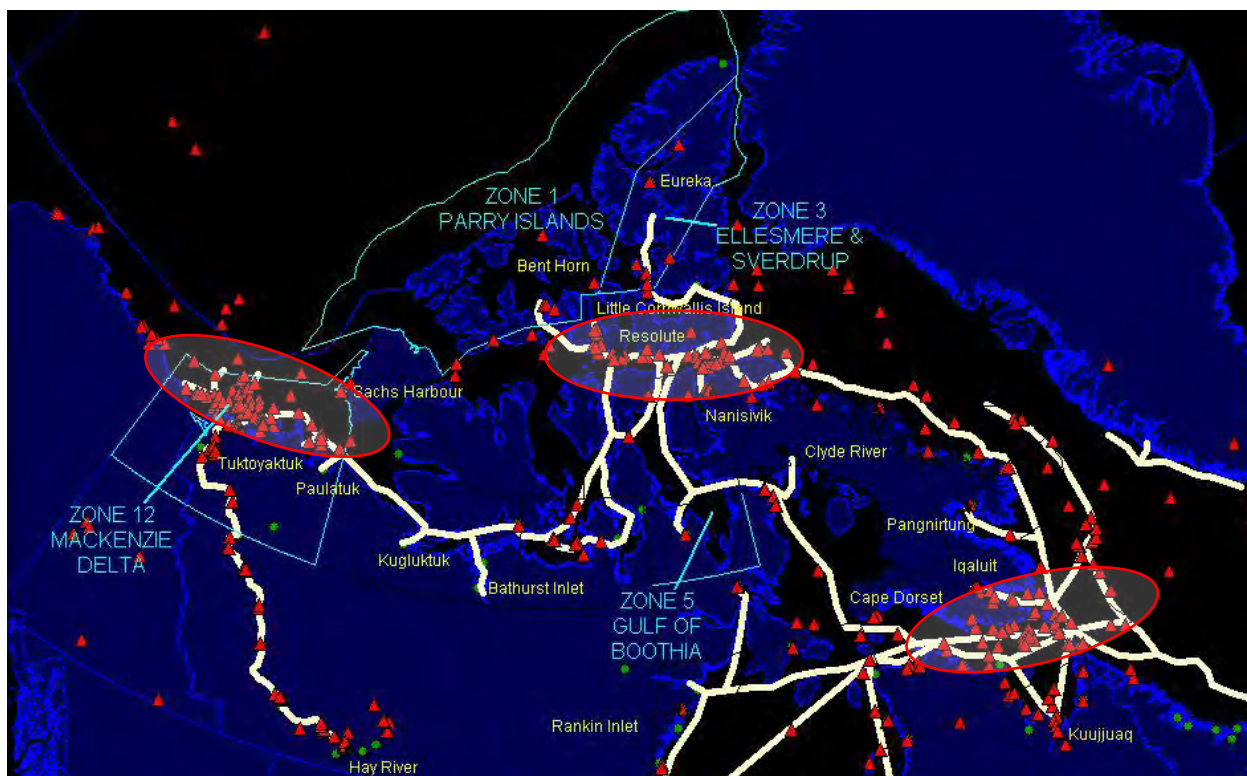


Figure 12 - Vessel Casualty Locations and Traffic Network, 1975 - 2008²⁹⁶

Source: Judson, *Trends in Canadian Arctic Shipping Traffic - Myths and Rumours*, 5.

SAR scenarios also include aircraft distress. Following the Cold War, there has been a significant increase in Polar Air Travel to capitalize on distance and cost savings for transcontinental flights.²⁹⁷ The CF is tasked with responding to a polar air disaster in concert with OGDs.²⁹⁸ A Major Air Disaster (MAJAID) contingency plan is maintained by Canada Command based on present capabilities.²⁹⁹ MAJAID planners will need to account for the AOPS after 2015, as well as the completion of planned forward-basing

²⁹⁶ For an Arctic-wide history of vessel casualties, see Ellis and Brigham, *Arctic Marine Shipping Assessment 2009*, 87.

²⁹⁷ Hanson, Jr., Capt. Edward R. and David Jensen, "Over the Top: Flying the Polar Routes," *Avionics Magazine*, <http://www.aviationtoday.com/av/categories/commercial/12647.html> (accessed October 25, 2010). and "End of Cold War Opens Polar Air Routes," *Space Daily*, <http://www.spacedaily.com/news/arctic-00b.html> (accessed October 25, 2010).

²⁹⁸ Canada Command, *Canadian Forces Search and Rescue*, 4.

²⁹⁹ Isabella Mindak, "Canadian Forces OP NANOOK 11 MAJAID Exercise to Employ New and Improved CF Capabilities," Canada Command, <http://www.airforce.forces.gc.ca/v2/nr-sp/index-eng.asp?id=11369> (accessed February 27, 2011).

infrastructure.³⁰⁰ Operational planners must thus ensure that AOPS training programs include SAR contingency plans for routine AOPS patrols.

Arctic SAR efforts will continue to challenge planners during the years leading up to the first AOPS being launched. There is already corporate experience at the national level for federal agencies tasked with SAR-related duties. The National Search and Rescue Secretariat (NSRS) and corresponding Interdepartmental Committee on Search and Rescue (ICSAR) have relationships between various federal government departments, while the JRCCs are well-versed in tactical responses to emergencies.³⁰¹ These various areas are where CF planners can leverage existing relationships and seek cooperation for integrating AOPS capabilities and availability into a coordinated framework to maximize benefit. This will ultimately lead to a safer environment for Canadians, grateful for a persistent CF presence.

COAST GUARD COOPERATION AND ARCTIC RESEARCH

A regular CF presence in the Arctic will require cooperation with the CCG for SAR and pollution response to act as a unified government presence to promote safety and protection of Canadian citizens and interests. The CCG also has secondary duties such as community resupply and assisting OGDs in research. These are compatible with AOPS secondary tasks.³⁰²

³⁰⁰ Some of these projects are updated in Assistant Deputy Minister (Policy), *ADM(Pol) Quarterly Update on DND/CF Arctic Projects*, 1-7.

³⁰¹ National Search and Rescue Secretariat, "Who we are - National Search and Rescue Secretariat," Department of National Defence, http://www.nss.gc.ca/site/whoWeAre/index_e.asp (accessed February 27, 2011).

³⁰² AOPS secondary missions include such broad areas as "Aid to the Civil Power" or "Support to Forces Ashore." Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 8.

The CCG transports equipment and supplies to northern communities through arrangements with federal and territorial agreements.³⁰³ The AOPS will have a similar capability, dependant on available infrastructure or expertise to offload at the destination.³⁰⁴ Regular domestic assistance to the CCG would create positive Public Affairs opportunities, and could be the foundation for developing port visit plans, which could then expand to include events in support of community or development initiatives. Operational planners cooperating with CCG authorities to intelligently combine CF and CCG capabilities could form a synergy to the mutual benefit of northern communities.

The CCG regularly cooperates with scientific initiatives, such as finding historic shipwrecks, assisting in continental shelf research, and providing services to research consortiums.³⁰⁵ The Eastern CCG fleet is based at the Bedford Institute of Oceanography, a gateway for the CCG to scientifically inclined OGDs.³⁰⁶ While CCG utilizes a specially outfitted icebreaker, AOPS will have sufficient sensors and adaptability to provide regular data on climate and oceanography if tasked, and could potentially serve as a platform for minor research initiatives.

Canadian warships carry trained meteorological technicians (METTECHs) to provide support to operations (such as ballistics), SA, safety of navigation, and embarked

³⁰³ Canadian Coast Guard, *About Canadian Coast Guard Services*, 3.

³⁰⁴ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 10.

³⁰⁵ Parks Canada, "Parks Canada 2010 Arctic Surveys - 2010 HMS Erebus and HMS Terror Expedition," Parks Canada, <http://www.pc.gc.ca/culture/expeditions/erebus-terror.aspx> (accessed March 7, 2011), Department of Foreign Affairs and International Trade, "Canada and US to Conduct Second Joint Survey of Extended Continental Shelf in the Arctic," Department of Foreign Affairs and International Trade (DFAIT), <http://www.international.gc.ca/media/aff/news-communiqués/2009/387434.aspx?lang=en> (accessed March 7, 2011). and Universite Laval, "Canadian Research Icebreaker - CCGS Amundsen," CCGS Amundsen Icebreaker Project, <http://www.amundsen.ulaval.ca/index.php?url=1> (accessed March 7, 2011).

³⁰⁶ Canadian Coast Guard, *Canadian Coast Guard 2008-2009 Fleet Annual Report* (Ottawa: Department of Fisheries and Oceans (DFO), 2009), 48.

aircraft. METTECH doctrine is co-authored by Environment Canada, making CF techniques compatible with other weather agencies.³⁰⁷ Standing direction requires METTECHs to transmit weather information to Environment Canada for later analysis and use, such as climate studies.³⁰⁸ As a Canadian warship travels, it seamlessly studies and transmits information useful and relevant to meteorological or climate-based science.³⁰⁹

This practice will continue onboard AOPS.³¹⁰ As an AOPS secondary mission is to support scientific endeavours, METTECHs could receive augmented training for specialized experiments as required. This secondary mission could thus strengthen relationships between the CF and Environment Canada, increase interest in the METTECH trade, and further capitalize on a regular northern Naval presence.

Northern research takes a variety of forms, all with challenges associated with fiscal cutbacks and available manpower. Despite partnership between numerous private and public agencies, northern research laboratories will continue to face these challenges as costs for resources, resupply and utilities climb.³¹¹ Arctic science is a stated national

³⁰⁷ METTECHs trained at the Canadian Forces Meteorological School use texts co-authored by Environment Canada. Practices for recording, compiling and transmitting data corresponds to national standards found in the Manual of Marine Weather Observing (MANMAR). Canadian Forces School of Meteorology, *Weather Forecasting*, 2nd ed. (Winnipeg: Canadian Defence Academy, 2000), 2, <http://17wing.winnipeg.mil.ca/cfsmet/Forecasting/pdfdocs/preface.pdf> (accessed March 7, 2011).

³⁰⁸ Maritime Command, *Maritime Command Order (MARCORD) 48-17 Weather Reporting Procedures and Information Services for HMC Ships*, Vol. 3A (Ottawa: Chief of the Maritime Staff, 2008), 4.

³⁰⁹ The AOPS will also be capable of gathering basic oceanographic data through regular use of bathy thermographs.

³¹⁰ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 95.

³¹¹ Editorial, "Saving Canada's Arctic Atmospheric Lab," *The Globe and Mail*, <http://www.theglobeandmail.com/news/opinions/editorials/Somnia/article1913875/> (accessed February 23, 2011).

priority and as research opportunities mount, the CF may be called to support, using existing relationships to leverage success.³¹²

SUBSURFACE MARITIME DOMAIN AWARENESS

A primary AOPS task is to provide “Maritime Domain Awareness.” This mission follows easily with conducting previously discussed sea control missions in support of Canadian law or responding to unforeseen emergencies. The AOPS will conduct surface surveillance through onboard sensors to enhance Canadian awareness of shipping within AOPS sensor range.³¹³ Canadian northern air surveillance has been conducted by sensors that also contribute to NORAD commitments. As the NORAD mission has also been extended to include maritime surveillance of North America, AOPS missions in support of Canadian “sovereignty” will also contribute to Canada’s role in North American defence.³¹⁴ This locally analysed data is then transmitted to RJOCS for fusion with the greater Canadian maritime picture. One area that AOPS capabilities will remain deficient in is underwater surveillance.

American submarines have conducted Arctic patrols since introducing nuclear technology to their Fleet. These patrols included operating within the Canadian EEZ.³¹⁵ Soviet (now Russian) naval bases in the Arctic support elements of their nuclear

³¹² Department of Indian and Northern Affairs, *Canada's Northern Strategy: Our North, our Heritage, our Future*, 24.

³¹³ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 45.

³¹⁴ The NORAD treaty was updated in 2006 to include maritime surveillance. *Agreement between the Government of Canada and the Government of the United States of America on the North American Aerospace Defense Command*, E105060, NORAD (May 12, 2006): 2, <http://www.treaty-accord.gc.ca/text-texte.asp?id=105060> (accessed February 21, 2011).

³¹⁵ USS *Nautilus* transited under the ice of the North Pole in 1958. USS *Seadragon* conducted a submerged transit of the Northwest Passage in 1960. Coates and others, *Arctic Front - Defending Canada in the Far North*, 89.

submarine fleet, prompting a regular presence from other NATO countries, including British submarines. While international law prohibits submarines from transiting another country's territorial waters submerged, regular compliance with this custom is doubtful.³¹⁶ The AOPS will have extremely limited means to detect and query submerged submarines, relying solely on sensors indigenous to embarked CH148 *Cyclone* helicopters.³¹⁷ Should concerted Antisubmarine Warfare (ASW) actions be needed, necessary resources will not be readily available.³¹⁸ While the prevalence and threat posed by transiting submarines is held at a highly classified level, AOPS capabilities nonetheless represent a capability gap for an issue that has been presented to the Canadian Forces (and public) for decades.³¹⁹ Considered with the lack of under-ice capability of *Victoria*-class submarines, operational planners will need to develop another means of facilitating maritime domain awareness. Automated sensors and surveillance systems are being developed, but will not arrive in the short term.³²⁰ In the meantime, Captain(Navy) Phil Webster proposed Water Space Management (WSM) as a stopgap

³¹⁶ Article 20 of UNCLOS requires submarines to transit surfaced and flying their flag. *United Nations Convention on the Law of the Sea*, (1982): 27, http://www.un.org/Depts/los/convention_agreements/texts/unclos/UNCLOS-TOC.htm (accessed February 19, 2011).

³¹⁷ Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 13.

³¹⁸ This would include CP140 Maritime Patrol aircraft based in Comox, BC or Greenwood, NS and Canadian Patrol Frigates based from Halifax, NS. These platforms carry specialized sensors for locating (and potentially fighting) underwater vehicles. The AOPS COE states CH148 helicopters will not be persistently deployed with AOPS.

³¹⁹ Huebert, *Renaissance in Canadian Arctic Security?*, 2. and David Pugliese, "U.S. Submarine's Trip to Arctic should Sound Alarms for Canada: Expert." CanWest News Service, <http://www2.canada.com/nanaimodailynews/news/story.html?id=2228051> (accessed February 21, 2011).

³²⁰ The "Northern Watch" project involves several sites with automated sensors to assist in cost effective Arctic surveillance. It remains in the development stage and will not progress beyond this before 2014. Brent Hobson, "Obsolescence Challenges, Part 4: Future Capabilities and Technologies," *Canadian Naval Review* 5, no. 1 (Spring, 2009), 23, <http://naval.review.cfps.dal.ca/archive/9945873-6613280/vol5num1art5.pdf> (accessed April 12, 2011) and Technology Demonstration Project Secretariat, "Northern Watch Technology Demonstration Project," Defence Research and Development Canada (DRDC), http://www.ottawa.drdc-rddc.gc.ca/html/rast_274_nwtd-eng.html (accessed April 12, 2011).

measure.³²¹ Deconfliction of Allied submarines using WSM regimes is a long-practiced method understood by all NATO countries. Controlled by national authorities, these WSM could be utilized at geographic chokepoints (evident in Figure 11) to increase awareness.

Where NATO WSM would assist Canada receiving better appreciation of Allied submarine patrols, it does not address the capability gap for non-NATO submarines transiting the Canadian EEZ without contacting national authorities.³²² Given the proliferation of submarines and the advent of air independent propulsion (AIP) systems in the newest diesel models, the distance savings inherent in polar transits could present themselves as attractive means of power projection to emerging powers.³²³ Detection and potential interdiction of offending submarines will have to rely on intelligence, followed by Canadian ASW-capable assets. These efforts could be complicated by seasonal weather and ice conditions.

Recent training operations, such as Operation NANOOK 2010, included Arctic-area ASW exercises, though they were conducted during the optimal navigation season and concentrated in the relatively expansive (and ice-free areas) of the Davis Strait and Baffin Bay.³²⁴ This gap has already been noted publically and could represent a negative

³²¹ Capt(N) Phil Webster, "Arctic Sovereignty, Submarine Operations and Water Space Management," *Canadian Naval Review* 3, no. 3 (Fall, 2007), 16, <http://naval.review.cfps.dal.ca/archive/public/vol3num3art4.pdf> (accessed January 25, 2011).

³²² Emerson, *The Future History of the Arctic*, 124.

³²³ James Clay Moltz, "Global Submarine Proliferation: Emerging Trends and Publications," Nuclear Threat Initiative (NTI), http://www.nti.org/e_research/e3_74.html (accessed February 21, 2011).

³²⁴ Arctic ASW exercises previously took place in OP NANOOK 2009 between Canadian surface and subsurface units. Jeri Grychowski, "CF Exercise in the Arctic - OP NANOOK 09," *The Trident*, <http://www.webcitation.org/query?url=http%3A%2F%2Ftridentnews.ca%2FNews%2Ftabid%2F54%2FarticleType%2FArticleView%2FarticleId%2F315%2FCF-exercise-in-the-ArcticOP-NANOOK-09.aspx&date=2009-09-12> (accessed February 21, 2011) and D. A. Young, "MARLANT Perspectives on Arctic Operations" (JTFP/MARPAC Arctic Working Group, Victoria, BC, Maritime Forces Atlantic, January 26, 2011) (accessed February 19, 2011).

PA issue.³²⁵ While the AOPS will be able to embark cargo containers that could facilitate “bolt-on” capabilities and sensors, towed sensors may be a poor choice in ice-infested waters.³²⁶ Without hull-mounted sensors (which could be concurrently used for hydrographic data collection), or the capability to operate a remote-controlled, underwater vehicle, the AOPS will be unable to adequately conduct subsurface surveillance and could be perceived as being unable to fully meet its described mandate.³²⁷ While expanding AOPS ASW capabilities at this point is unlikely, operational planners should determine if foreign submarine transits constitute a sufficient threat to advocate for more frequent CH148 Helicopter Air Detachments (HELAIREDTs) in AOPS, both to provide better capability with available sensors, and also to expand Air Force experience in Arctic ASW conditions.³²⁸ Only CH148 capabilities will bridge the present capability gap for subsurface maritime domain awareness in the more confined waters of the Arctic Archipelago during all seasons. Regular training exercises will need to continue ASW training, incorporating AOPS once available, to expand CF doctrine and experience in Arctic ASW.

³²⁵ Michael J. Harvey, *"Mission Impossible" Or "Mission Accomplished" - the Critical Need for Undersea Sensors Aboard the Arctic Offshore Patrol Ships* (St. John's, NL: Marport Deep Sea Technology, 2009), 3 and Pugliese, *U.S. Submarine's Trip to Arctic should Sound Alarms for Canada: Expert.*, 2.

³²⁶ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 22 and Harvey, *"Mission Impossible" Or "Mission Accomplished" - the Critical Need for Undersea Sensors Aboard the Arctic Offshore Patrol Ships*, 5.

³²⁷ *Ibid.*, 6.

³²⁸ HELAIREDTs are “owned” by the Canadian Air Force. However, strategic planning occurs between Navy and Air Force through documents such as the MCPG and the Helo Allocation Committees (HACs). Operational planners should incorporate training potential, and the inherent host of capabilities the CH148 could bring to an Arctic deployment when advocating for HELAIREDT allocation. Maritime Command, *MARCOM Capability Planning Guidance 2011 to 2014*, 18.

Despite the Arctic Ocean being the world's shallowest and least surveyed ocean, US submarines are experienced in operating beneath its waters.³²⁹ The Russian Navy, based north of the Arctic Circle, also operates extensively in the Arctic Ocean.³³⁰ Corporate knowledge and experience notwithstanding, submarine accidents are always significant, as unforeseen circumstances, poor practices or lack of familiarity with the operating environment could lead to emergencies. These accidents can be severe if they occur while a submarine is submerged.

In 2005 USS *San Francisco* collided with an underwater seamount in the Pacific Ocean, causing extensive damage and injury to crewmembers. Human error and poor navigation practices were to blame.³³¹ In 2007, HMS *Tireless* suffered an internal explosion while submerged in the Arctic Ocean.³³² Two crewmembers were killed, and the submarine was fortunate to have been operating in concert with another American unit. Cargo submarines, while unlikely to be lucrative for several years, have nonetheless been proposed for Arctic operation.³³³ Canada and NATO nations retain standing

³²⁹ An American submarine, USS *Queenfish* conducted a secret, subsurface survey mission in 1970. William J. Broad, "Queenfish: A Cold War Tale," *New York Times*, sec. Science, March 18, 2008, http://www.nytimes.com/2008/03/18/science/18arctic.html?_r=3&8dpc&oref=slogin (accessed February 21, 2011). Comparisons of the Arctic to the world's other oceans highlight the significant challenges inherent in operating submerged operations. Ellis and Brigham, *Arctic Marine Shipping Assessment 2009*, 18.

³³⁰ Emerson, *The Future History of the Arctic*, 114.

³³¹ US Pacific Fleet Public Affairs, "USS San Francisco Investigation Completed," United States Navy, http://www.navy.mil/search/display.asp?story_id=18257 (accessed February 21, 2011).

³³² "Two Sailors Killed on Submarine," British Broadcasting Corporation (online), <http://news.bbc.co.uk/2/hi/6476959.stm> (accessed February 21, 2011).

³³³ Civilian cargo submarines have brought attention from industry in both the US and Russia. P. Taylor and J. Montgomery, "Arctic Submarine Tanker System" (Houston, TX, Offshore Technology Conference, May 2, 1977), <http://www.onepetro.org/mslib/servlet/onepetropreview?id=OTC-2998-MS&soc=OTC> (accessed February 21, 2011), Lawrence R. Jacobsen and James J. Murphy, "Submarine Transportation of Hydrocarbons from the Arctic," *Cold Regions Science and Technology* 7, no. 1 (June, 1983), 272-283, http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V86-488G697-11&_user=10&_coverDate=06/30/1983&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&_view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=a82da8154c96de04f2f21080cd857178&searchtype=a (accessed February 21, 2011) and "Submarine Cargo Vessel,"

contingency plans and specialized, deployable equipment for Submarine Search and Rescue (SUBSAR). An accident in a profit-driven submarine in (or near) the Canadian EEZ could have significant implications for Canadian preparedness.

The Navy continually updates plans and maintains equipment, but neither coast has SUBSAR plans that consider Arctic conditions.³³⁴ This represents a potential capability gap exacerbated by the remoteness of the area and little capacity for support from regional communities. CCG ships presently patrolling Arctic waters have limited interoperability with SUBSAR plans. No AOPS document speaks to the vessel being compatible with current SUBSAR equipment or tasked to execute SUBSAR plans. Significant negative publicity for the government and CF could occur should AOPS not be able to respond to a SUBSAR event, however remote the possibility.³³⁵ AOPS mission planning should incorporate SUBSAR training and operational commanders should call for modifications to existing equipment (if feasible). Contingency plans must incorporate Arctic conditions. Hasty emergency response in the vicinity of ice conditions brings further demonstrates the necessity for competent ice navigation skills. As cooperation and coordination with CCG assets is seen as advantageous for contributing to a more comprehensive sea control conditions, incorporating CCG capabilities into

Central Design Bureau for Marine Engineering (“Rubin”), <http://www.ckb-rubin.ru/eng/project/otherp/uwaters/index.htm> (accessed February 21, 2011).

³³⁴ CFCD 103, the national SUBSAR manual does not speak to Arctic SAR conditions. The AOPS COE or SRD documents do not list compatibility with SUBSAR equipment or conducting SUBSAR operations as tasks or requirements.

³³⁵ HMCS Chicoutimi suffered a fire from unforeseen events that resulted in the death of an officer. Canadian submarines are regularly reported on, with a generally negative opinion being derived from public media. "Sub Fleet Creating Canadian Controversies," Defence Industry Daily, <http://www.defenseindustrydaily.com/sub-support-contract-creating-canadian-controversy-04563/> (accessed February 21, 2011) and "CBC News in Depth: CANADA'S SUBMARINES," Canadian Broadcasting Corporation, <http://www.cbc.ca/news/background/cdnsubs/chicoutimitimeline.html> (accessed February 21, 2011).

subsequent Arctic SUBSAR plans may assist in ensuring adequate and successful response.

COMBAT (OPERATIONAL) READINESS

While maritime military forces conduct navigation and seamanship evolutions in a similar fashion to their civilian counterparts, military skill sets expected of Canadian Naval forces will continue in AOPS deployments and must be adapted to the Arctic environment and geography with training subject to the local restrictions. Besides previously mentioned regulatory infractions and pollution responses, interdicting illegal resource exploitation and illicit maritime activity (such as illegal immigration or criminal enterprise) fall within the AOPS mission.³³⁶

Under the Canadian Naval Readiness and Sustainment framework, AOPS crews will need to execute “assigned CF continental and expeditionary missions that do not entail the possibility of high intensity, full spectrum combat.”³³⁷ Skill sets needed to conduct this described mission rely on technology and equipment suited to the task and environmental conditions. Aside from previously discussed SAR seamanship tasks, other core Naval tasks include gunnery, interdiction operations and Replenishment at Sea (RAS).³³⁸ To fully adapt these skill sets into the Arctic setting, existing training practices and tactical doctrine will need to be modified.

³³⁶ Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 4.

³³⁷ Director Maritime Policy and Operational Readiness, *CFCD 129 Readiness and Sustainment* (Ottawa: Maritime Command, 2009), 15. Specific evolutions that are expected to be conducted while a ship is at a given readiness level are outlined in Chapter 1 of CFCD 102. Sea Training, *CFCD 102 Maritime Command Combat Readiness/Training Requirements*, 11th ed. (Victoria: Maritime Forces Pacific, 2009), 9.

³³⁸ Director Maritime Policy and Operational Readiness, *CFCD 129 Readiness and Sustainment*, 23.

The AOPS will field a 25mm main gun, complemented by 0.50 calibre Heavy Machine Guns (HMGs).³³⁹ The Canadian Navy possesses sophisticated expertise in the handling of these weapons, though training scenarios are based on overseas missions. Expertise will need to be developed at the tactical level to support law enforcement and interdiction operations.³⁴⁰ Regulations and legislation for naval gunnery is collected in a Maritime Command Order, with strict guidelines for balancing environmental stewardship and training necessities.³⁴¹ Both coasts have designated exercise areas with associated approved environmental assessments to allow for regular gunnery practice.³⁴² Firing in an unregulated, open ocean environment is less restrictive, but present doctrine does not consider the more restrictive AWPPA, where any object that degrades could be deemed “waste.”³⁴³ There also may be a heightened public sensitivity to what is acceptable during Arctic military training that involves any form of jetsam.

Surface gunnery has occurred during Arctic exercises, though only in the wider areas of the Davis Strait.³⁴⁴ Since AOPS is expected to conduct missions in all areas of the Arctic Archipelago, and to be able to respond decisively against a delinquent vessel anywhere in Canada’s jurisdictions, the potential for executing warning or disabling gunfire in close proximity to coastlines must be considered. To develop these skill sets, regular gun practice should occur in more confined areas. To accommodate this

³³⁹ Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 199.

³⁴⁰ Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 13.

³⁴¹ Maritime Command, *Maritime Command Order (MARCORD) 46-03 Safety Firing Orders for Ships & Submarines*, Vol. 3A (Ottawa: Chief of the Maritime Staff, 2009), 1-38.

³⁴² Promulgated military exercise areas are provided to mariners as Annual Notice to Mariner No. 35. Canadian Coast Guard, *Notices to Mariners 1 to 46*

³⁴³ Canada. Department of Justice, *Arctic Waters Pollution Prevention Act*, 2.

³⁴⁴ During NANOOK 2010, surface gunnery occurred east of Iqaluit in the Davis Strait. Young, *MARLANT Perspectives on Arctic Operations*, 18.

requirement, an environmental assessment should be conducted to better understand if a permanent, in-shore gunnery area can be adopted in the Canadian Arctic.³⁴⁵ These steps will help maximize training value, assist tactical planners in shaping deployment plans, and minimize potential negative PA concerning military exercises in environmentally sensitive areas.

Naval Boarding Party (NBP) operations are a key skill set in today's Canadian Navy.³⁴⁶ Operations involving NBP teams are a principle method for conducting Maritime Interdiction Operations (MIO), to assist in evacuations or other contingency operations, and to bolster Force Protection requirements.³⁴⁷ Standard NBP practices are easily adaptable to different environments and conditions, but due to present CF capabilities, are reliant on boarding a vessel who has become compliant (whether initially or through coercive means such as warning shots) by means of a boat and ladder.³⁴⁸

³⁴⁵ The Canadian Forces practice with respect to environmental stewardship when conducting operations without a strict understanding of regulatory regimes is that of "due diligence." Formalized environmental assessments are covered under a Defence Administration Orders and Directives (DAOD) that compiles all other legislation and regulation pertinent to operating in Canada. Director General Environment, *Defence Administrative Order and Directive (DAOD) 4003-2 Environmental Assessment* (Ottawa: Assistant Deputy Minister (Finance and Corporate Services), 2004), 1-6.

³⁴⁶ Directorate of Maritime Strategy, *LEADMARK: The Navy's Strategy for 2020*, 38. The Canadian Naval Boarding party has seen steady employment since Operation SHARP GUARD (1993 – 1996) to keep arms from entering the former Yugoslavia. Since then, NBPs have been used during Operation APOLLO (2001 – 2003) to combat smuggling of al-Qaeda members and to support the Proliferation Security Initiative (PSI). NBPs were used to protect World Food Programme ships and to search and seize suspected pirates in the Gulf of Aden. Maritime Command Public Affairs, "Canadian Navy: Operation SHARP GUARD," http://www.navy.forces.gc.ca/cms/4/4-a_eng.asp?id=510 (accessed February 28, 2011), "The Canadian Forces' Contribution to the International Campaign Against Terrorism," Department of National Defence, <http://www.forces.gc.ca/site/news-nouvelles/news-nouvelles-eng.asp?cat=00&id=490> (accessed February 28, 2011), Department of Foreign Affairs and International Trade, "The Proliferation Security Initiative," Department of Foreign Affairs and International Trade (DFAIT), <http://www.international.gc.ca/arms-armes/nuclear-nucleaire/psi-isp.aspx?lang=eng> (accessed February 28, 2011) and "Canadian Warship FREDERICTON Intercept Suspected Pirates in the Gulf of Aden," North Atlantic Treaty Organization, <http://www.aco.nato.int/page272201931.aspx> (accessed February 28, 2011).

³⁴⁷ Peter Augustus, "Naval Boarding Party Operations," *Canadian Naval Review* 3, no. 4 (Winter, 2008), 26, <http://naval.review.cfps.dal.ca/archive/4321185-0654948/vol3num4art8.pdf> (accessed February 27, 2011).

³⁴⁸ Director Maritime Policy and Operational Readiness, *CFCD 108 Maritime Command Boarding Operations Manual*, 87.

While there have been instances of helicopter-inserted boarding party members, standard training does not presently deal with helicopter insertion and no corporate knowledge exists for this practice outside of the Special Forces community.³⁴⁹

The Arctic environment will pose challenges to NBP members. The remoteness and vast distances inherent in patrolling Canada's northern EEZ has already been discussed, but the advantages of leveraging AOPS helicopter assets has been explored in the AOPS Concept of Employment.³⁵⁰ Should a suspicious or offending vessel be detected and a boarding or interdiction required, an NBP team inserted via the AOPS helicopter will be able to respond much faster and in a more direct path. This capability, used against a low threat target, may allow a more expeditious means to interdict certain vessel types and would maximize the effectiveness of two AOPS in the eastern Arctic conducting sovereignty patrols. The use of helicopter insertions would also mitigate the need for more cumbersome personal protective equipment (PPE) in addition to standard webbing, weapons and ballistic protection due to the climate. Jetty infrastructure is not prevalent in the Canadian North and the shorelines of islands may necessitate added protection for boats used in landing members ashore.

Exercises such as Operation NANOOK have already yielded NBP lessons learned. Operational planners will need to demand future lessons be captured in sufficient detail to pass to project managers in order to develop appropriate Arctic PPE to

³⁴⁹ Director Maritime Policy and Operational Readiness, *CFCD 108 Maritime Command Boarding Operations Manual*, 88. A helicopter insertion was used during Operation MEGAPHONE involving the GTS *Katie*. Associated Press, "Canadian Navy Boards Ship Carrying Military Supplies," *The Independent*, <http://www.independent.co.uk/news/world/americas/canadian-navy-boards-ship-carrying-military-supplies-711281.html> (accessed February 28, 2011) and Canadian Expeditionary Command, "Operation MEGAPHONE," Canadian Expeditionary Command, <http://www.cefcom.forces.gc.ca/pa-ap/ops/megaphone-eng.asp> (accessed February 28, 2011).

³⁵⁰ Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 11.

ensure northern NBP success and safety. Standard NBP tactics may have to be modified to account for different or heavier equipment.

The distances involved in transiting Arctic waters make replenishment a serious factor to consider in planning. A West Coast-based AOPS transiting from Esquimalt to Inuvik will travel a comparable distance as Esquimalt to Tokyo.³⁵¹ Fuel availability is further complicated by the quantities required to sustain AOPS operations when coupled with the needs of the community that may rely on these quantities to last a substantial portion of a season. While the Canadian Navy employs replenishment ships (Auxiliary Oil Replenishment (AOR)) on both coasts, their single hull construction and present serviceability record makes consistent AOR support unlikely.³⁵² Any replacement for the aging *Protecteur*-class will not be available upon delivery of initial AOPS units, requiring reliance on shore-based fuel depots.³⁵³

During recent Arctic exercises, Naval ships have either received fuel support from pre-arranged fuel depots or through an arrangement with the CCG. Receiving fuel from CCG ships involves both vessels coming alongside each other while at anchor (as seen in Figure 12). This method of RAS is seldom practiced by the Canadian Navy as regular operating environments permit RAS while underway.³⁵⁴

³⁵¹ Dermot Mulholland, "MARPAAC Perspectives on the Western Arctic" (JTFP/MARPAAC Arctic Working Group, Victoria, BC, Maritime Forces Pacific, January 26, 2011, 2011) (accessed February 19, 2011).

³⁵² David Pugliese, "The Navy's Take on the Joint Support Ship Problems," Ottawa Citizen, <http://communities.canada.com/ottawacitizen/print.aspx?postid=235644> (accessed February 28, 2011).

³⁵³ No date of initial delivery is presently listed for the JSS project. Project Management Office - Joint Support Ship, "Joint Support Ship (JSS)," Assistant Deputy Minister (Materiel), <http://www.forces.gc.ca/aete/jointsupportshipjss-projetdunaviredesoutieninterarmeesnsi-eng.asp> (accessed February 28, 2011).

³⁵⁴ Director Maritime Policy and Operational Readiness, *CFCD 105 Seamanship Rigging and Procedures Manual*, 2nd ed. (Ottawa: Maritime Command, 2009), 358. The AOPS will be able to conduct underway RAS evolutions with any AOR corresponding to NATO standards. Project Management Office - Arctic Offshore Patrol Ship, *Arctic Offshore Patrol Ship (AOPS) Statement of Requirements (SRD) - Draft 15 September 2010*, 114.



Figure 13 - Arctic RAS. HMCS Montreal receives fuel from CCGS Terry Fox
Source: Canada Command Public Affairs, Op NANOOK.

Considering Arctic conditions, this RAS configuration makes good sense. It allows for two ships of dissimilar configurations to exchange fuel in a controlled manner. This evolution can be conducted anywhere in the Arctic archipelago, without having to first seek open, ice-free waters so long as anchoring conditions exist. Initial experience exists as all recent northern exercises involving Canadian Navy ships have required this evolution. While this alongside RAS is in many ways similar to receiving fuel while moored to a jetty or barge, as seen in the picture, expected jetty services (such as pollution control) must be indigenously deployed and coordinated. As experience grows, lessons must be captured into existing doctrine to ensure seamanship training is prepared for AOPS activities.

To safely berth alongside another ship at anchor, a high degree of skill in both shiphandling and seamanship is required. This manoeuvre is not practiced during regular MARS officer development and seldom practiced during operations. The Canadian Navigation Manual (CNM), the main source of Canadian Naval shiphandling doctrine,

provides only a brief mention of this manoeuvre.³⁵⁵ The Admiralty Manual of Navigation (considered a “parent document” to the CNM) goes into more detail, and highlights the need for skill and practice.³⁵⁶

Conducted in benign conditions, mooring outboard another vessel to fuel can be straightforward. However, the presence of wind (as little as 10 knots) or an unforeseen circumstance (such as an error made by a helmsman), could result in an accident. This might result in damage, leading to expensive repairs in the best case, or an environmental accident in the worst. As northern exercises continue, lessons learned from manoeuvring Canadian ships alongside others must be captured and disseminated. As AOPS crews are developed, specialized shiphandling training needs to be incorporated into junior officer and command training. This will not only mitigate risk in potentially challenging circumstances when fuel is required and the weather is not expected to improve, but also will ensure that public opinion is not negatively brought to bear on a training system that does not adequately prepare ship’s crews for expected evolutions.

Introducing the AOPS platform and associated capabilities to the Canadian Navy will provide many challenges for planners at the operational, tactical and training level to identify and overcome. With an arrival time of 2015, it would be prudent to develop a plan that aims to provide future crews with the specialized skills necessary for Arctic steaming, modifies existing training streams for seamanship and operational practices to consider the northern environment and the sourcing and procurement of suitable equipment to support these initiatives. The AOPS will also represent a crewing concept

³⁵⁵ Naval Officer Training Centre VENTURE, *CFCD 130 Canadian Navigation Manual*, 167.

³⁵⁶ United Kingdom. Commander in Chief Fleet, *Admiralty Manual of Navigation (BR45)*, 2nd ed., Vol. 6 (Fareham: Operational Publications Authority, 2002), 131.

far removed from other naval vessels, where manning redundancy is a fact of operating a warship in a threat environment. The arrival timeline dictates that the training development must be done in conjunction with developing operational missions that both synchronize with other government initiatives, assigned military tasks and seeking to further positive public opinion for a regular CF presence in the North. Lessons should be sought from other countries that have faced these challenges, such as the United States Coast Guard following the introduction of their newest icebreaker, the USCGC *Healy*. The officer chosen to first captain the *Healy* strove to form a crew a year early, to evolve existing standing orders and speculate on necessary doctrine to develop.³⁵⁷ Upon launching, representatives from many Arctic nations were embarked to stimulate cooperation and draw on collective experience. The Canadian Navy's return to the Arctic will coincide with increased shipping, a higher demand for government presence to monitor regulations and respond to assistance, and a situation where many private and public interests will converge. The Navy must approach this challenge humbly as it develops experience, but must leverage on the inherent strengths of the talent the Navy recruits and the capable mindset for success instilled by the CF training system.

CHAPTER 4 – WHOLE OF GOVERNMENT APPROACH

Strategic WOG initiatives are coordinated within the Privy Council Office (PCO).³⁵⁸ Canada's role in the Afghanistan conflict has produced experienced civilian public service members who actively participated in coordinated efforts between

³⁵⁷ Garrett, *Science and Innovation in the Arctic*, 67.

³⁵⁸ Canada. Privy Council Office, "About PCO Secretariats," Privy Council Office, <http://www.pco-bcp.gc.ca/index.asp?lang=eng&page=secretariats> (accessed March 18, 2011).

Canadian agencies to fulfill mission objectives.³⁵⁹ Lessons learned and new corporate knowledge and experience have resulted in developing multi-agency teams to facilitate WOG efforts for future requirements. An example is the Stabilization and Reconstruction Task Force (START) which falls under Foreign Affairs Canada.³⁶⁰ Despite the continued opportunity for different agencies to cooperate, careful analysis reveals that inter-jurisdictional collaboration for emergency and disaster planning remains poor.³⁶¹

WOG partnerships will have to continue to develop at the operational level in order to properly integrate the CF into government plans in the Arctic. These initial relationships will likely be ad hoc and dependant on personalities and initiative, without the advantage of a mandated body such as the PCO. There do exist opportunities to leverage established opportunities that bring together various agencies to galvanize support for cooperation and information sharing concerning the Arctic. The Arctic Security Interdepartmental Working Group (ASIWG) was a JTFN initiative to provide a forum for northern agencies to collaborate on issues pertaining to Arctic Security.³⁶² However, as a bi-annual event, it is not agile enough to coordinate efforts for an unforeseen disaster or to assist in the administration of bridging inter-agency gaps (such as infrastructure requirements or areas of governance).

³⁵⁹ Jeff Davis, "Feds' Go-to Team in Afghanistan Part of New Whole-of-Government Strategy," *The Hill Times*, <http://www.thehilltimes.ca/page/view/afghan-04-19-2010> (accessed January 24, 2011).

³⁶⁰ Department of Foreign Affairs and International Trade, "START-Stabilization and Reconstruction Task Force," Department of Foreign Affairs and International Trade (DFAIT), <http://www.international.gc.ca/start-gtsr/index.aspx> (accessed March 18, 2011).

³⁶¹ Lackenbauer, *From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World*, 29.

³⁶² Huebert, *Renaissance in Canadian Arctic Security?*, 22 and Ed Struzik, "'Who's Guarding our Back Door?'," *The Star*, <http://www.thestar.com/Arctic> In Peril/article/277429 (accessed March 18, 2011).

Northern exercises such as Operation NANOOK have allowed for coordinated testing of contingency plans in the Canadian North. Having practiced responses to terrorist activities, pollution-based disasters and a Major Air Disaster (MAJAD), NANOOK will continue to be very important to promote inter-agency cooperation and updating contingency plans. However, NANOOK is too high profile and time constrained to address issues that will be regular staples of an AOPS patrol, such as community engagement, assistance to minor crises or enforcing northern shipping regimes.

The negative sides of WOG approaches must be known and followed by operational planners as well. As non-government organizations (NGO) will be as crucial to improving northern quality of life and responding to natural disasters as they are abroad, concerns about maintaining the neutrality and impartiality of these organizations must be considered when coordinating efforts.³⁶³ Lessons learned from Afghanistan or Haiti needs to be disseminated to northern planners to best avoid friction points and ensure efficient use of NGO resources in the North. The CF should seek to avoid implications of “militarizing” the North through their efforts or infringing on the expected roles of NGOs.

Examining the list of contributing agencies to activities during Operation NANOOK reveals the inherent challenge in maintaining regular contact with all of them

³⁶³ John Siebert provides several examples of reports from organizations representing NGOs that have been critical of some aspects of “whole of government” approaches. John Siebert, "Testing "Whole of Government" in Afghanistan," *Ploughshares Monitor* 31, no. 2 (Summer, 2010), 19, <http://www.ploughshares.ca/libraries/monitor/Monitor%20June%202010/Summer2010%20monitor.pdf> (accessed January 29, 2011).

to facilitate the planning of a series of AOPS patrols.³⁶⁴ However, CF planners will need to focus partnerships in areas likely to see repeated need for use of the powers inherent in a given agency (such as DFO or RCMP), and maintain an advertised open door for the remainder. As human and fiscal resources will continue to be strained, environments where liaisons are already present, such as in the RJOCs, at BIO or the ASIWG will need to be leveraged and opportunities for inclusive planning are available.

ANALYSIS

This paper has examined aspects of the Arctic theatre and cultures that will require regular consideration for planning Arctic patrols with the AOPS. It has sought to amplify assigned missions to highlight the considerable challenges and need for proper preparation. While the CF is not a stranger to conducting domestic operations, performing domestic patrols with similarities to overseas missions but within the boundaries and framework of Canadian law and other governmental jurisdictions is a new challenge.

The expected crew changeovers and number of AOPS units available (between six and eight) spread between opposite coasts will cause complications for unity of doctrine and execution of programs if largely left to the tactical level to progress. As neither coast has solidified relationships with Arctic agencies, Canada Command (CANCOM) makes the most sense to maintain operational oversight of Arctic patrol missions. From Ottawa, CANCOM can forge necessary contacts with key agencies and pass to the tactical level regional office contacts or territorial agencies. Regionally,

³⁶⁴ Sixteen federal departments, five territorial departments and the municipal government of Iqaluit took part in Op NANOOK 2009. Public Safety Canada, *Exercise OP NANOOK 2009 After Action Report* (Iqaluit: Public Safety Canada, 2010), 7.

JTFN, as a regional extension of CANCOM, will have the most in-depth knowledge in cooperating with northern agencies, personalities and cultures. Acting as a single, centralized point of contact, CANCOM can maintain full SA of Arctic concerns and generate a list of effects desired by all agencies that could be assisted by a regular AOPS presence.

As an operational command, CANCOM can influence training agencies to ensure proper skill sets are being developed and honed. This could also be a facet of inter-agency cooperation due to expertise in the CCG for ice navigation skills, DFO for hydrographic support or Transport Canada for exercising powers to enforce anti-pollution statutes.

Centrally located in Ottawa, CANCOM can leverage CF experts and experience to develop and conduct training in cultural intelligence, northern PA and contingency planning for disaster relief. This expertise could be leveraged from the Canadian Forces Leadership Institute and commands or formations that have recent experience in Afghanistan, Haiti or the Vancouver Olympic games. CANCOM will also be able to efficiently seek guidance or support from the strategic level should policies need clarification or subtle alterations to force structure be required to better support AOPS operations as experience is gained and lessons learned.³⁶⁵

Regardless who is tasked with northern operational planning, the issues of doctrine and training need to be a central issue. The AOPS Concept of Employment notes considerations for developing initial capabilities required, but operational planners

³⁶⁵ The CDS has assigned strategic-level agencies to implement government direction. This is stipulated in his Defence Priorities and lists the Strategic Joint Staff as implementing strategies for Arctic Sovereignty. Chief of the Defence Staff, *Defence Priorities (2011 - 2014)*, November 26, 2010.

must seek to manage these timelines and ensure that efforts are converging on specific dates.³⁶⁶ Feedback should be demanded from every AOPS to evolve understandings of seamanship, navigation and Maritime Interdiction Operations. Calls for modifications or new equipment to better support these operations should be expected in the early days of AOPS deployments and supported as best as fiscal environments allow. Individual AOPS need to regularly support improving Arctic navigation and maritime safety, such as incorporating the collection of CHS-acceptable information for *Sailing Direction* updates alongside the expected preparation of MARPIFs. As an Arctic Common Operating Picture (COP) will be developed to support Maritime Domain Awareness, so too should a broader form of SA be developed to maintain the expanding understanding the CF will receive from northern operations against the regular turnover of personnel.

Doctrinally, PA is supposed to be considered at every level of mission planning, with representation at all times. This fact must remain significant for AOPS planning and execution. PA representatives familiar with Arctic cultures and known to northern representatives will further endear CF efforts to northern audiences. The high costs associated with northern operations will need to be regularly rationalized to the Canadian population (and potentially government) and PA can be an essential enabler in making these justifications. As the cultures associated with AOPS crewmembers and the Inuit are likely to be different, friction and incidences may occur. A worst case scenario could involve an incident with a “strategic corporal.”³⁶⁷ AOPS Commanding Officers will need

³⁶⁶ Director General Maritime Force Development, *Arctic/Offshore Patrol Ship Concept of Employment*, 12.

³⁶⁷ A strategic corporal is a tactical-level (typically low-ranking) member whose actions (usually associated with negative ones) have repercussions that resonate at the strategic or political level. An example is the torture and killing of Shidane Arone by Master Corporal Matchee and Private Brown in 1993. Recognition of the need for leaders to stay cognizant of situations and environments that could produce a “strategic

to have the tools required to develop crews with understanding and tolerance, with an operational level that supports this requirement.

The recommended endstate is an operational framework to provide coastal formations to develop training, establish local contacts and conduct missions that support the initiatives of other government agencies already active in the North. Port visits would take on diplomatic roles to connect with local communities and assist with improving quality of life. This could be in support of local or territorial programs such as building modular houses, contributing to a local sports program or conducting public speaking or presentations on subjects relating to nutrition, health or security. Offshore missions would comply with missions assigned by CFDS and listed in the AOPS COE. The tactical level should receive a list of effects needed to be actioned in a given time period.

A proposed example is:

Within the first two years, AOPS shall patrol waters in each Inuit settlement region a minimum of once, with a focus for repeated visits and official calls in settlement capitals. Engagements in Churchill, MB will be required to continue strategic initiatives between Industry Canada, the government of Nova Scotia and Manitoba.³⁶⁸ Transit times shall incorporate training in preparation with cooperative operations between CCGS X in the months of January and May and CCGS Y in the months of March and October.³⁶⁹

Training shall focus on safe replenishment activities and seamanship evolutions that will

corporal” is contained in *Duty with Honour*. Canadian Forces Leadership Institute, *Duty with Honour : The Profession of Arms in Canada*, 64.

³⁶⁸ The port of Churchill is a major shipper of grain from the Canadian Prairies. An MOU was recently signed between the city of Halifax and Churchill to further support initiatives of mutual trade and cooperation. Nancy Philips and Bill Drew, *Press Release: Halifax and Churchill Team Up to Build Bridge for Grain*, *Arctic Business* (Churchill, MB: Churchill Gateway Development Corporation, 2009), 1.

³⁶⁹ This statement is an example of operational-level coordination with the CCG to determine where AOPS and CCG ships can best cooperate without detracting from their respective planned patrols.

support emergency response to stricken vessels or operating in ice-covered waters. CHS priorities are the regions of X, Y and Z. AOPS shall visit these areas at least once within two years to conduct local hydrographic surveys utilizing echo sounder and portable route survey equipment. Helicopter operations shall focus on developing northern ASW tactical doctrine, incorporating CCG ice scouting practices into Air Force experience and practicing resupply missions.

Port visits shall be a minimum of four days in duration, with a minimum of two days allotted for northern engagement and CIMIC activities. These engagement activities shall be done in full cooperation with local government, territorial and municipal agencies. Contacts for these regional offices shall follow. Regional contacts will provide an overview of issues, challenges and desired outcomes of local programs for each community.

Public Affairs products shall be produced in advance of missions to convey intentions to northern audiences. These shall be transmitted in local languages when feasible. Promotion of the experiences of members for dissemination to larger media audiences is encouraged.

All AOPS operations shall contribute to the evolution of standing doctrine and the development of new tactics and procedures. Necessary modifications to MARCORDs shall be done in accordance with MARCORD 1-01. Port information shall be updated for both MARPIFs and CHS *Sailing Directions*. Lessons Learned shall be communicated in Post Deployment Report formats, with high-value information communicated by QUICKLOOK message at the earliest convenience.

CONCLUSION

Following the vision and direction inherent in the Canadian Government's strategy to maintain an Arctic presence and expand the influence of government agencies to positively contribute to northern communities and shipping will be a significant challenge. The CF has the history to prove that northern operations are not an insurmountable task, but as issues relating to Inuit self-government, climate change, and resource development continue to expand, the CF must adapt quickly. As AOPS vessels will become a significant factor in regular Arctic presence, the preparation for manning and operating a new platform with unfamiliar capabilities while concurrently learning about the Arctic operating environment will be a significant challenge to operational planners and their focus of effort.

In order to ensure that operational planning does not retrace old steps, the experiences and lessons from previous, recent missions need to be leveraged. This will include the experience being built in the Public Service with WOG initiatives. The CF will need to ensure that success in domestic operations occurs smoothly alongside already –entrenched government agencies, in a fully supportive role as expected by Canadian legislation and Canadians.

With the arrival of a capability to continually operate in the Arctic theatre indefinitely, the CF will also need to seek ways to properly educate its leaders and personnel to the Inuit culture, a Canadian community that faces significant challenges in its own right. As previous missions have seen, the interaction between military forces and civilian communities requires building trust, working towards strategic goals (such as

diplomatic efforts) and espousing Canadian values. These will all be necessary in regular interaction with northern communities and must be factored into mission preparations.

In order to properly facilitate building the necessary relationships to integrate CF northern operations with the greater Canadian government's goals, to ensure that solidarity of focus is maintained on efficiently and effectively generating tactical experience and passing on lessons learned and acting in a consistent manner with northern communities, a centralized operational framework needs to be developed, either through CANCOM, or JTFN as an extension. The most important enabler of CF relations with northern communities and maintaining regular dialogues at the local level will be through fully supporting the Canadian Rangers in all their activities.

While the world is continuously being described as "increasingly complex" and the demand for military assistance is extended to situations of disaster relief, humanitarian assistance and domestic security operations, a regular presence in the Canadian North will present a new and fresh challenge that will have similarities to these overseas examples. Viewed throughout history with wonder and contributing to a sense of adventure in its remoteness and still little explored shores, the Arctic will breed a new generation of capable mariners with unique skills and experiences. Getting from here to there will be a challenge, but knowing that the centre of Canada and its hemisphere lies north of the tree line and most of what we consider Canada, the CF is well-poised to succeed in protecting Canadians and their security.

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