

IN DEFENCE OF DEFENCE: CANADIAN ARCTIC SOVEREIGNTY AND SECURITY

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Since the Second World War, Canada's armed forces have often represented the most prominent federal organization in the occupation and use of the Canadian Arctic. Economic development in the region came in fits and starts, hindered by remoteness and the lack of any long-term industry base. Today the Arctic's resource potential, fuelled by innovative technological advances, has fed to demands for infrastructure development. New opportunities in Canada's Arctic have, in turn, influenced a growing young population and their need for increased social development. Simultaneously, the fragile environment becomes a global focal point as the realities of climate change are increasingly accepted, diplomatically drawing together circumpolar nations attempting to address common issues.

A unipolar world order developed with the geopolitical imbalance caused by the fall of the Soviet Union. This left the world's sole superpower, the United States (US), and its allies facing increased regional power struggles, international terrorism, and trans-national crime. Given the combination of tremendous growth in the developing world, its appetite for commodities, and the accessibility to resource-rich polar regions facilitated by climate change, Canada faces security and sovereignty issues that are both remnants of the Cold War era and newly emerging.

The response to these challenges has been a resurgence of military initiatives to empower Canadian security and sovereignty in the region. Defence-based initiatives

are more responsive than diplomatic and developmental programs, which are frequently slow to develop, non-governmentally driven, and cumbersome within a multi-lateral organizational framework that includes territories, the federal government, and seven other circumpolar nations. Therefore, due to its inherent characteristics of experience, training, capacity, presence, resources, and timeliness of response, the Canadian Forces (CF) is suitably leading the Government of Canada's response to existing and emerging Arctic security and sovereignty challenges.

Background

Canada owns the world's longest coastline, six times longer than the equator. It has the fifth largest Economic Exclusive Zone, second largest continental shelf, and has a maritime estate approximately 70% the size of its landmass. With potentially successful future claims in the Arctic under the United Nations Convention of the Law of the Sea (UNCLOS), Canada's maritime estate could roughly equal Canada's landmass. No wonder, then, that Canada can be said to be a maritime nation with crucial links between the protection and management of its marine resources and its survival.

Canada's western and eastern coasts are bridged by the Arctic Ocean and the North West Passage (NWP). The NWP encompasses approximately 5,000 km of waterways that reduce European-Asian shipping routes by 8,000 km¹ and east coast North American-Asian routes by 7,000 km² over the standard Panama Canal route. Through its deep-draft route, the NWP is able to handle vessels in excess of the

¹Morris Maduro, "Northern Shortcut: The Temptation of One Warming Line Through the Arctic," <http://www.canadiangeographic.ca/Magazine/ND00/maduro.asp>; accessed 11 March 2008.

²Michael Byers, "Build an Arctic Gateway to the World," *Globe and Mail*, 26 November 2007, <http://www.uofaweb.ualberta.ca/govrel/news.cfm?story=69605>; accessed 18 March 2008.

Panama Canal's maximum draft,³ although suitability of the route is limited by summer ice conditions and hull strength.

Canada's Arctic geography includes a vast repository of resources, the bulk of which remain undeveloped. Upwards of 50% of the world's undiscovered hydrocarbons are estimated to lie in the Arctic⁴ while Canada's northern mines already supply one third of the world's diamonds.⁵ Fresh water and fish stocks are also significant. This resource base, coupled with rapidly advancing technology, has drawn much attention to all Arctic regions. The international race to stake claims against these resources highlights the need for careful management practices, especially against the backdrop of climate change, which is shaping both the environment and the peoples of the Arctic.

The general history of Canada's acquisition of the Arctic lands and the significant impact of military activities on the social and physical geography of the region since the Second World War are well documented.⁶ The 1940 Ogdensburg Agreement established the Permanent Joint Board on Defence (PJBD), creating for the first time a combined American-Canadian body responsible for continental security.⁷ This significant step laid the foundation for the cooperative strategy on defence that both countries have since continued. Additionally, the establishment of the PJBD cemented Canadian and American policy, a relationship that has benefited Canada without a doubt, albeit at a cost to Canadian identity and, critics argue, sovereignty.

³Autoridad del Canal de Panama, "MR Notice to Shipping no. N-1-2005," <http://www.pancanal.com/eng/maritime/notices/n01-05.pdf>; accessed 11 March 2008.

⁴Library of Parliament, *Canadian Arctic Sovereignty*, <http://www.parl.gc.ca/information/library/PRBpubs/prb0561-e.htm>; accessed 4 March 2008; p. 5.

⁵George Werniuk, "Canada Now Ranks Third in Diamond Production," *Investor's Digest of Canada* 38, no. 5 (3 March 2006), p. 131.

⁶For a recent overview, see P. Whitney Lackenbauer and Mathew Farish, "The Cold War on Canadian Soil: Militarizing a Northern Environment," *Environmental History* 12 (October 2007).

⁷Department of National Defence, "Backgrounder: The Permanent Joint Board on Defense," http://www.dnd.ca/site/Newsroom/view_news_e.asp?id=298; accessed 11 March 2008.

The late 1950s also saw numerous American incursions into Canadian territory. The Distant Early Warning (DEW) Line dotted the Arctic coastline while increased maritime activity raised questions about Canadian control over the waters. In 1957, the US Coast Guard Ship (CGS) *Storis* made the fourth transit of the NWP, followed by the US Submarine (USS) *Nautilus*' distinction as the first submarine to do so in 1958. In response to the build up of the Soviet nuclear submarine and long-range bomber threat,⁸ that same year the CF established a station at Alert as "the most northern permanently inhabited settlement in the world."⁹ Furthering Canada's presence in its North was timely as shortly thereafter the USS *Sea Dragon* became the first submarine to transit to and surface at the North Pole in 1960, followed by the first Russian submarine, *Leninsky Komsomol*, in 1962. No wonder the 1961 Brock Report highlighted the need for Canada to adopt a "three oceans' strategy if it were to exercise its sovereignty over the whole of the area it claimed, and even more so to enhance that claim." Admiral Brock's call for a "renewal of RCN activity in the Arctic archipelago as an urgent task"¹⁰ would remain unanswered for several decades as Canada's population continued to fail to understand the significance of not having the ability to control its North.

The US oil tanker *Manhattan*'s NWP transits in 1969 and 1970 rekindled Canada's public awareness about the Arctic.¹¹ Despite much public attention, the only concrete Canadian response was the 1970 Arctic Waters Pollution Prevention Act

⁸Rob Huebert, "The Rise and Fall (and Rise?) of Canadian Arctic Security," in *Defence Requirements for Canada's Arctic*, ed. Brian MacDonald (Ottawa: Conference of Defence Associations Institute, 2007), p. 10.

⁹Department of National Defence, "Backgrounder: CFS Alert," http://www.forces.gc.ca/site/Newsroom/view_news_e.asp?id=625; accessed 5 September 2007.

¹⁰LCol Douglas Bland, "Continuity in Canadian Naval Policy, 1961-1987," *Canadian Defence Quarterly* (April 1989), <http://centreforforeignpolicystudies.dal.ca/cdq/Bland%20April%201989.PDF>; accessed 11 March 2008; p. 30.

¹¹Gordon Jones and Bruce Rogers, "Sunday Magazine," CBC Radio, http://archives.cbc.ca/IDC-1-73-2349-13652/politics_economy/northwest_passage/clip6; accessed 4 September 2007.

(AWPPA) that created a 100 nautical mile pollution control zone extending seaward from Canada's Arctic coastlines.¹² The 1971 White Paper on Defence clearly articulated the importance of Canada's North and that sovereignty challenges could arise from "territorial violations or infringements of Canadian laws."¹³ The Canadian position on the sovereignty of its North was furthered by the 1973 and 1975 proclamations that the NWP was an internal, historic waterway. Similar to its lack of recognition for the 100 nm zone established by the AWPPA, the US did not recognize the NWP as Canadian internal waters and insisted that it was an international strait.¹⁴

Although the USCGS Polar Sea transited the NWP from Greenland to Alaska in 1985, launching another round of Canadian sovereignty concerns, the US did provide Canada notification of the voyage prompting Canada to provide unsolicited permission. This established a relationship in which the issue of Canadian sovereignty of its Arctic does not obscure or hinder the Canadian-US bilateral relationship. The position can be summed by paraphrasing David Collenette, the former Minister of National Defence: do not ask for permission and we will never refuse.¹⁵ This works for the US by avoiding a precedent-setting scenario that could apply to other contentious waterways, such as the Gulf of Arabia.¹⁶ Nevertheless, Canadian public opinion was again strongly against what was seen as American insensitivity towards Canadian sovereignty. Later that

¹²Library of Parliament, *Canadian Arctic Sovereignty*, p. 4.

¹³Department of National Defence (DND), *1971 Defence White Paper* (Ottawa: Information Canada, 1971), p. 8.

¹⁴During the United Nations (UN) Third Law of the Sea Conference (UNCLOS), from 1973 to 1982, a significant global shift in recognition of maritime boundaries occurred: both the US and Soviet Union conceded the limit of territorial seas from three nm to the 12 nm already claimed by many nations. Additionally, UNCLOS recognized more than one dozen archipelagic states and introduced the "right of transit passage" which, unlike the "right of innocent passage," allowed submarines to pass through the designated waters while remaining submerged. One consequence of this left the governing state's sole control of the waterway relegated to environmental concerns. Canada ratified UNCLOS in 2003 while the US has not yet done so.

¹⁵House of Commons *Debates* (6 November 1995), p. 16245.

¹⁶For example, Canada respects Iranian designation of straight baseline calculations of its territorial waters whereas the US does not. Elliot-Meisel, "Still Unresolved after Fifty Years," p. 5.

year, Prime Minister Mulroney clearly articulated that Canada's national identity was linked with both its sovereignty, over the land, water, and ice of the Arctic, and its security.¹⁷ The following year the Government implemented straight baseline calculations for enclosing "Canada's historical internal waters" and announced a Polar 8 Icebreaker Program, designed to exert Canada's influence over its Arctic waters.

The 1987 White Paper on Defence promised significant steps to enhance Canada's northern security through the planned procurement of a nuclear submarine fleet and additional maritime aircraft to patrol Canada's 'three-ocean frontier.'¹⁸ Further requirements were articulated for an underwater sonar surveillance system and the replacement of the Sea King anti-submarine helicopter fleet. Nonetheless, military presence declined in the Arctic. Over time, numerous programs were cancelled: the submarines in 1989, the Polar 8 icebreaker in 1990, the Sea King replacement in 1993, and the underwater surveillance system in 1996. The Tracker patrol aircraft was phased out in 1991. The Oberon submarine fleet retired in 2000, leaving Canada's submarine fleet very tenuous (only one partially operational Victoria Class submarine operates at the time of writing). The 1991 fall of the Berlin Wall and the evaporation of the traditional Cold War threat sunk the 1987 White Paper. The rationalization for these expensive platforms disappeared, and Canada's ability to increase its northern presence also diminished.

Overshadowed by the threat of "the steady growth of public sector debt," the 1994 White Paper on Defence called for significant personnel reductions to 60,000 while still maintaining the need to "demonstrate, on a regular basis, the capability to

¹⁷House of Commons *Debates* (10 September 1985), p. 6463.

¹⁸DND, *1987 Defence White Paper* (Ottawa: Canada Communications Group, 1987), pp. 53, 57.

monitor and control activity within Canada's territory, airspace, and maritime areas of jurisdiction."¹⁹ With no "direct immediate threat to Canada," the "thousands of flying hours over the Arctic archipelago"²⁰ by patrol aircraft in the 1970's had shrunk to only four patrols by 2000.²¹ Additionally, the frequent exercises of the 1950s and 1970s, which forged the Canadian Army into winter warfare experts, had also disappeared. Though the Rangers continued to function, their patrols were limited in numbers.²²

In 2000, Canada charted a course to reinvigorate interest in its Arctic. The Northern Dimension of Canada's Foreign Policy sought to "assert and ensure preservation of Canada's sovereignty in the north"²³ and the RCMP Vessel Naddon, renamed St Roch II, symbolically transited the NWP. By 2005, the Defence Policy Statement clearly indicated Canada's north to be a "vital region of the country."²⁴ With the 2007 announcements of an expanded Ranger force, the establishment of a military Arctic training center at Resolute Bay, the Arctic/Offshore Patrol Vessel (AOPV) program, and the decision to build an Arctic deepwater port at Nanisivik, Canada's commitment to "maintain a federal presence in Canada's Arctic waters"²⁵ re-emerged. With the recent \$720 million commitment to build a Canadian Coast Guard (CCG) Polar Class icebreaker, the government appears prepared to invest in this presence well into the future.

¹⁹DND, *1994 Defence White Paper*, (Ottawa: Canada Communications Group, 1994), chapters 2 and 4.

²⁰Lackenbauer and Farish, "The Cold War on Canadian Soil," p. 935.

²¹DND, *Arctic Capabilities Study*, (Ottawa: Director General Strategic Plans, 2000), p. 9.

²² For a short overview of the Rangers' history, see P. Whitney Lackenbauer, "Canada's Northern Defenders: Aboriginal Peoples in the Canadian Rangers, 1947-2005," in *Aboriginal Peoples and the Canadian Military: Historical Perspectives*, ed. P. Whitney Lackenbauer and Craig Leslie Mantle (Winnipeg: Canadian Defence Academy Press, 2007), pp. 171-208.

²³Department of Foreign Affairs and International Trade (DFAIT), *The Northern Dimension of Canada's Foreign Policy* (Ottawa: DFAIT, 2000).

²⁴DND, *Defence Policy Statement* (Ottawa: Department of National Defence, 2005), p. 8.

²⁵Office of the Prime Minister of Canada, "Backgrounder - Expanding Canadian Forces Operations in the Arctic," <http://www.pm.gc.ca/eng/media.asp?id=1785>; accessed 5 September 2007.

Canada's military interests in the Arctic flowed and ebbed during and after the Second World War. The Cold War Arctic battleground has now become the scene of a resource rush. However, the results are unresolved of a long-term commitment to protect the region, both militarily and environmentally, and issues of sovereignty. This paves the way for Canadian federal policy to develop and implement tools for long-lasting success in this region.

CANADIAN SECURITY AND SOVEREIGNTY DEFINED

The Oxford Dictionary defines security, applied in the international sense, as the ability of a state to protect against the aggression of another.²⁶ Recognizing that the raising and support of armed forces to protect a nation is a costly endeavour, states turn to alliances to gain synergies of effort through collective defence. It is doubtful that any one country, save the US, could protect itself without the aid of its allies. For Canada, this means that political sovereignty may not be wholly achievable if it is to meet all its security needs, requiring it to relinquish some autonomy in favour of preserving alliances and relationships supporting security.

"Canadians have always felt secure in the knowledge that the Arctic was its own defence by virtue of an inhospitable climate, the huge distances involved, and terrain that would surely discourage any serious thought of invasion."²⁷ General Paul Manson's words set the stage for the perception of security that Canadians hold about their Arctic, which has developed over time as Canada's security focus has emphasized non-North American theatres, countering the threat through actions abroad in Europe

²⁶*Pocket Oxford English Dictionary*, ed. Catherine Sloane, 9th ed. (New York: Oxford University Press, 2002), p. 816.

²⁷Paul Manson, "Forward," in *Defence Requirements for Canada's Arctic*, ed. Brian MacDonald (Ottawa: Conference of Defence Associations Institute, 2007), p. 1.

and Asia. As a result, Manson's quote highlights how Canadians have seldom needed to look north: the Arctic's physical and temporal separation from most Canadians' minds, coupled with the fortress-like nature of North America, has propagated a perception of intrinsic security.

Physical security is a product of protecting people from a threat and preserving their way of life. Born out of the temporary, albeit shocking, Japanese occupation of the Aleutian islands of Attu and Kiska, attention was first drawn to Arctic security in WWII. Then, during the Cold War, the Arctic became the battleground for American and Soviet intercontinental and submarine launched ballistic and cruise missile forces. The dramatic and rapid paradigm shift from Cold War to global War on Terror underscores the unpredictable nature of modern threats. All three events have highlighted the vulnerability of Canada's Arctic security, tempered as it is by the knowledge that Canadians have historically exercised little control over the security of this region.

With increased exploration of remote Arctic areas supported by developing technologies to find and exploit remote mineral and energy resources, economic security is an essential component of the overarching concept of physical security. Economic security stems from the ability to market goods and services without interruption. It requires responsiveness to known and emerging scenarios that can be disruptive; therefore, economic security demands that a government be able to monitor and respond expeditiously to traditional and non-traditional threats. Although the economies of Canada's Arctic territories are small in relation to the rest of the country, they are vital to the survival of the residents. Additionally, the extent of the Arctic's untapped and uncharted resource wealth has not been fully identified. This

unpredictability makes defining threats to both physical and economic security difficult yet essential.

Physical security also has an environmental component: the environment is the framework that encompasses the people who inhabit the land and their prosperity and culture. In the Arctic, protection of the environment and the ability to prevent damage to it has evolved as a key issue to the survival of its residents, especially for the basics such as water, food, and health. Furthermore, as shown with the Manhattan's transit, there is additionally a psychological component to security that must be assuaged.

In sum, physical security from military, economic, or environmental threats is about understanding and possessing the capability to react to them to ensure the viability of the people who live there. Given Canada's size and its relatively small population base, its relationship with the US demonstrates that a nation need only have access to the means to ensure its security rather than own it outright. Competing demands and limited resources, however, are forcing Canada to increase its capabilities.

The Oxford Dictionary defines sovereignty as "complete power or authority."²⁸ For Canada as a state, this implies freedom from interference by other states; freedom of action within its territory; freedom to impose its rule of law and governance over its territory; and the ability to maintain a presence on that territory to exert its authority. In short, sovereignty is the ability to use and influence its territory and its people. In the Library of Parliament's 2006 report *Canadian Arctic Sovereignty*, Daniel Phillpot describes that: "Sovereignty is supreme legitimate authority within a territory...

²⁸Pocket Oxford English Dictionary, p. 1083.

supreme authority within the territory implies both undisputed supremacy over the lands inhabitants and independence from unwanted intervention by an outside territory.”²⁹

Franklyn Griffiths and Douglas Johnston suggest that sovereignty can be broken into two components.³⁰ Legal sovereignty refers to a state’s right to impose exclusive jurisdiction over an area, thus allowing it to enforce its laws – what Harriet Critchley called “functional jurisdiction.”³¹ In the political context, sovereignty refers to freedom from control by outside states in the governance of an area.³²

Canadian Arctic sovereignty takes on a broader definition as it encompasses stewardship, environmental protection, and resource management rather than just border definition. Former Minister of National Defence Bill Graham stated that “sovereignty is a question of exercising, actively, your responsibilities in an area.”³³ If Graham’s ideas such as “use and occupancy”³⁴ enter into the sovereignty equation, the importance of maintaining a presence on the land or water becomes essential as its lacking allows in-roads to be made by others.³⁵ For Canada, sovereignty means that it can act to govern over and respond to threats and actions against its territory. The Arctic Security Interdepartmental Working Group (ASIWG) defines sovereignty as “a recognized right, ability and will to exercise exclusive jurisdiction within a geographical

²⁹Library of Parliament, *Canadian Arctic Sovereignty*, p. 2.

³⁰Franklyn Griffiths, “The Northwest Passage in Transit,” *International Journal* 54, no. 2 (Spring, 1999), <http://proquest.umi.com/pqdweb?did=413567471&Fmt=7&clientId=65345&RQT=309&VName=PQD>, accessed 12 March 2008 and Douglas M. Johnston, “The Northwest Passage Revisited,” *Ocean Development and International Law* 33, no. 2 (April 2002): pp. 146-147.

³¹Elliot-Meisel, “Still Unresolved after Fifty Years,” p. 5.

³² Canada has degrees of each. Canada is taking strides to preserve the legal sovereignty of its north and, since the repatriation of its constitution in 1982, it has been politically autonomous. However, given that Canada has become so serious about its northern dimension in recent years and that it has been inextricably joined to the US hip by history, culture, and trade, it also can be seen as lacking both components.

³³Graeme Smith, “Graham Focuses on Arctic During Visit to Russia,” *Globe and Mail*, 3 September 2005, p. A5.

³⁴Jose A. Kusugak, “Stewards of the Northwest Passage,” *National Post*, 3 February 2006, p. A18.

³⁵Though not discussed in this paper, ‘use and occupancy’ or stewardship of the land focuses more on development and governance aspects of sovereignty.

area (with a defined border, people within it and some form of government).”³⁶ Key to exercising jurisdiction is the capability to act against a threat, a notion that is articulated in the DND’s Naval Vision (1994): national sovereignty is built upon the “capability for surveillance, patrol, and response.”³⁷ With most Canadians living within 300 km of the US border,³⁸ Canada’s sovereignty over its southern regions is unchallenged. Where the component parts of sovereignty lose clarity is in Canada’s Arctic, where its ability to exert its sovereignty is weaker.

As the effects of climate change and globalization take hold, the relevance of the Arctic becomes more important to Canada, its circumpolar neighbours, and others. In July 2007, Prime Minister Harper was explicit:

As oil, gas and minerals of this frontier become more valuable, northern-resource development will grow ever more critical...The need to assert our sovereignty and protect our territorial integrity in the Arctic on our terms has never been more urgent.³⁹

Canada has finally recognized the need to act.

Rob Huebert’s comment that “to most Canadians the dispute over the Northwest Passage is simply about sovereignty for its own sake”⁴⁰ identifies the naïve understanding that Canadians have about the Northern frontier. In other words,

³⁶Governments of Northwest Territories, Nunavut, Yukon, *Developing a New Framework for Sovereignty and Security in the North*, http://www.gov.nt.ca/research/publications/pdfs/sovereignty_and_security_in_the_north.pdf; accessed 28 February 2008; p. 4.

³⁷DND, *The Naval Vision: Charting the Course for Canada's Maritime Forces into the Next Century* (Halifax: Canada Communications Group, 1994), p. 12.

³⁸Environment Canada, “How Much Fresh Water Does Canada Have?” *Envirozone* 1, (18 December 2001), http://www.ec.gc.ca/envirozine/english/issues/01/any_questions_e.cfm; accessed 12 March 2008.

³⁹Kelly Howard, “Tories Plan Icebreaker,” *Victoria News*, 11 July 2007; http://www.martinfrost.ws/htmlfiles/july2007/canada_ice.html; Internet, accessed 12 March 2008.

⁴⁰Rob Huebert, “Northern Interests and Canadian Foreign Policy” (Calgary: University of Calgary Centre for Military and Strategic Studies Paper, 2002), <http://www.cdfai.org/PDF/NORTHERN%20INTERESTS%20AND%20CANADIAN%20FOREIGN%20POLICY.pdf>; accessed 12 March 2008, p. 5.

Canadians are concerned about waving the flag over their land without a real appreciation for what flag waving means. Just as Griffiths' political and legal components of sovereignty are intertwined, so to are sovereignty and security. Canada must have both the governance mechanisms and the means to govern over its territory: otherwise control over the environment, the resources therein, and the safety of its inhabitants can be threatened, risking their livelihood and the economy that allows them to prosper and live on the land and seas.

CANADIAN ARCTIC SECURITY: THE THREAT DEFINED

Canada eyes the importance of the Arctic differently from the US. In both its 1999 report *Transforming Defense – National Security in the 21st Century*⁴¹ and its 2008 Annual Threat Assessment of the Director of National Intelligence⁴² the US fails to identify the Arctic as a national security concern, omitting comment on its hydrocarbon reliance and substantial Alaskan reserves.⁴³ The similarity between American and Canadian Arctic regions, both in terms of societies and the importance on their resource-based economies, is significant, leaving one to consider if Canada's position should necessarily reflect threats to American security.⁴⁴

The current Canadian government is taking a pragmatic approach towards the Arctic. Its' 2005 *Policy Declaration* articulated a 'Canada-First' defence policy in which

⁴¹Jessie C. Carman, "Economic and Strategic Implications of Ice-Free Arctic Seas," in *Globalization and Maritime Power*, ed. Sam J. Tangredi (Washington, DC: National Defence University Press, 2002), p. 182.

⁴²Michael J. McConnell, *Annual Threat Assessment of the Director of National Intelligence for the Senate Select Committee on Intelligence* (Washington, DC: Director of National Intelligence, 2008).

⁴³Alaska provides approximately 5% of daily US oil requirements. See the US Energy Information Administration at <http://www.eia.doe.gov>.

⁴⁴The Canadian Beaufort Basin alone holds recoverable reserves of one billion barrels of oil and nine terra cubic feet of natural gas, enough to supply 1.3 and 2.6 years of domestic consumption, respectively. For comprehensive details, see the Beaufort-MacKenzie Mineral Development Area website at <http://www.bmmda.nt.ca/background.htm> and the Index Mundi website at http://www.indexmundi.com/canada/natural_gas_consumption.html.

domestic defence “includes commitments to provide improved security of our territory.”⁴⁵ Perhaps this difference is out of necessity because the US has always taken measures to ensure the security of its Arctic interests, or at least it has the capability to do so, whereas Canadian security of its North has relied, often heavily, on US support.

Canada identified generic national security threats in 2005,⁴⁶ having previously alluded to vague terms such as the 2000 *Northern Dimension of Canada's Foreign Policy* statement to “assert and assure the preservation of Canada's sovereignty in the North.”⁴⁷ Accordingly, military training such as Exercise Narwhal and Operation Kigliqavik occurred in the early part of this decade, but these token efforts did not represent a coherent Arctic security strategy. Although the Conservative Party's 2006 federal election platform was vague on specific threats,⁴⁸ the current government's intention to improve northern security is refreshing in acknowledging that new challenges have emerged. Identifying these challenges remains to be articulated to the public, but Canada has taken “immediate moves to increase equipment and resources to exercise Canada's sovereignty [and security] in the Arctic.”⁴⁹

The bipolar global system of the Cold War brought about a stability and certainty of who or what the threat was and how Canada would respond to it. Today's reality is that the global system has changed and continues to do so. No longer is it static or

⁴⁵Conservative Party of Canada, *Policy Declaration*, 19 March 2005, <http://www.conservative.ca/media/20050319-POLICY%20DECLARATION.pdf>; accessed 2 March 2008, p. 40.

⁴⁶Threats were grouped as terrorism, proliferation of weapons of mass destruction, failed and failing states, foreign espionage, natural disasters, critical infrastructure vulnerability, organized crime, and pandemics. Privy Council Office, *Securing an Open Society*, pp. 8, 9.

⁴⁷DFAIT, *Northern Dimension of Canada's Foreign Policy*, p. 2.

⁴⁸Conservative Party of Canada, *Stand Up for Canada: Federal Election Platform 2006*, <http://www.conservative.ca/media/20060113-Platform.pdf>; accessed 2 March 2008, p. 9.

⁴⁹Conservative Party of Canada, *Policy Declaration*, p. 41.

symmetrical, but it is fluid and non-bipolar as the developing world seeks to catch-up to the West's quality of life and level of influence. Is Canada's response adequate?

In 2004, Canada articulated its national security policy and defined its top national security interest as "protecting Canada and the safety and security of Canadians at home and abroad."⁵⁰ Then, in 2005, the *Defence Policy Statement* articulated the most critical security issue as the Government's "[in]ability to conduct surveillance of our vast territory, airspace, and maritime approaches."⁵¹ When one looks at the make up of the Arctic, it is clear that, despite its land mass and vast ice-locked area akin to land, it is a coastal and archipelagic region with distinct maritime qualities. It follows that the physical security of Canada's Arctic is about maritime security. In his book, *The Characteristics of a Modern Navy*, historian Harold Kearsley describes the penetrable nature of sea frontiers.⁵² With 64% of Canada's coastline in the Arctic and a demonstrated limited ability to guard it, this frontier is penetrable and vulnerable.

Canada has never been able to defend itself from a conventional state-on-state attack and nor will it be able to in the future. It relies on a collective defence through NATO and specifically with the US: "Our bilateral cooperation continues to provide us with a degree of security that we could never achieve on our own."⁵³ In reading into its defence policy, however, Canada relies on its ability to effect sufficient surveillance of its territory to detect threats and engage its collective defence strategy. In its southern

⁵⁰Privy Council Office, *Securing an Open Society*, p. 7.

⁵¹DND, *Defence Policy Statement*, p. 2.

⁵²Harold J. Kearsley, *Maritime Power and the Twenty-First Century* (Aldershot, Hants: Dartmouth Publishing, 1992), p. 15.

⁵³DND, "The Canada-U.S. Defence Relationship in a Changing World," *Defence Policy Statement* (Ottawa: DND, 2005) http://www.dnd.ca/site/Reports/dps/main/04_e.asp; accessed 30 March 2008.

littoral, Canada has sufficient infrastructure in place to fulfill its surveillance requirements. It is unable to do so in its Arctic.

The Russian threat, though diminished, has not altogether disappeared since the end of the Cold War: its defence spending has quadrupled from 2000 to 2006 with an estimated additional 30% increase in 2007.⁵⁴ Closer to home, Russian bombers have increased their frequency of Arctic patrols in 2007, requiring an increased Canadian fighter escort response, while its submarine fleet remains potent. All this Russian activity is fuelled by revenue generated by the recent boom in commodity prices, most notably oil and gas.⁵⁵

Mixed signals in the NATO-Russia relationship give credence to the unpredictable nature of the evolving Russian threat to Canada and North America. In 1996, after speaking to the Russian and Norwegian Defence Ministers, US Secretary for Defense William Perry stated: "NATO is not a threat to Russia, any more than Russia is a threat to NATO."⁵⁶ In 2003, at the meeting of the NATO-Russia Council, NATO Secretary General Lord Robertson spoke of a "future in which the relationship between NATO Allies and Russia would be defined not by rivalry and mutual suspicion, but by a spirit of genuine partnership."⁵⁷ Such political rhetoric aside, tension remains. Russian President Putin was deliberate in his 2007 remark that he would target European cities in the event that NATO deploys a missile shield system to prevent terrorist missile

⁵⁴Global Security.Org, "Russian Military Spending," <http://www.globalsecurity.org/military/world/russia/mo-budget.htm>; accessed 8 March 2008.

⁵⁵Charlie Szrom and Thomas Brugato, "Liquid Courage: When Oil Prices Rise, So Does Russia's Foreign Policy Aggression," *The American Magazine*, 22 February 2008, <http://www.american.com/archive/2008/february-02-08/liquid-courage>; accessed 18 April 2008.

⁵⁶United States Department of Defense, "New Russian Defense Chief Meets Western Counterparts," <http://www.defenselink.mil/news/newsarticle.aspx?id=40690>; accessed 8 March 2008.

⁵⁷Lord George Robertson, "Opening Statement by NATO Secretary General, Lord Robertson, at the NATO-Russia Council Meeting of Foreign Ministers, Madrid, 4 June 2003," http://www.nato-russia-council.info/htm/EN/documents04jun03_2.shtml; accessed 12 March 2008.

attacks against allied countries.⁵⁸ Recently, in response to Kosovo's succession (heralded as a victory for democracy by the West), Russia's NATO envoy announced: "In order to be respected, we must use brute force, in other words armed force."⁵⁹ Russian aggression against North America is unlikely. Despite significant Western collaboration with Russia on issues such as terrorism and peacekeeping, however, and as much as Russia has made progress to implement democratic reforms, its history of aggression towards the West cannot be forgotten.

Despite the collapse of the Soviet Union and massive decommissioning of its submarine fleet,⁶⁰ Russia still retains a significant polar ice capability with 38 nuclear submarines.⁶¹ Additionally, as Russia benefits from historically high oil and gas commodity prices, it has been able to afford a resurgence of military activity such as the 2007 resumption of Tupelov bomber flights into the Beaufort Sea Basin. Who is to say that because today NATO and Russia enjoy workable relationships, they will not sour in the future? In the summer of 2007 the Russian Navy was able to freely operate a team of patrol boats from Murmansk across the top of Russia in the Beaufort Sea without the escort of ice-hardened vessels.⁶² The upshot of this is the demonstration that, as the impact of climate change expands, so to does the military access to and the exploitability of the Arctic's changing environment.

The submarine threat is not limited to Russia alone; other nations have made unauthorized use of Canadian Arctic waters as well. China has reportedly conducted

⁵⁸TimesOnline, "Russian Missile Threat to Europe Raises Cold War Fear Over US Shield," TimesOnline 5 July 2007, <http://www.timesonline.co.uk/tol/news/world/europe/article2028710.ece>; accessed 12 March 2008.

⁵⁹Steven Edwards, "Russia Warns it Will Use Force to Back Serbia," *National Post*, 23 February 2008.

⁶⁰In 1999 over 110 nuclear submarines were awaiting reactor dismantling. James Clay Moltz and Tamara C. Robinson, "Dismantling Russia's Nuclear Submarines: New Challenges to Proliferation," http://www.armscontrol.org/act/1999_06/subjun99.asp; accessed 12 March 2008.

⁶¹"Submarines" in *Janes Underwater Warfare Systems* 16th ed., ed. Anthony J. Watts (Alexandria: Janes, 2005).

⁶²Alan Bailey, "U.S. Must Boost Arctic Presence," *Petroleum News* 12, no. 43 (28 October 2007).

submarine penetrations.⁶³ A French submarine was sighted in 1999 near Iqaluit during President Jacques Chirac's visit to Nunavut.⁶⁴ Additionally, it has been long suspected that British submarines have transited Canadian waters without permission en route to the North Pole. Finally, as recent as 2005, the *USS Charlotte* was believed to have transited Canadian waters without permission as it voyaged from Hawaii to the East Coast.⁶⁵ Because Canada has neither the resources to detect submarines in its Northern reaches nor the water space management relationships to follow who is using its waters and for what purposes, it cannot verify these suspicions.

The CF's Director of Maritime Strategy's assessment of the world's submarine fleets done in 2007 highlighted the extent of this weapon platform's proliferation: Russia, China, and 29 other non-NATO countries operated 56, 67 (seven nuclear), and 170 submarines respectively.⁶⁶ The nuclear club will also expand in the future as both Brazil and India have indigenous SSN programmes that could yield boats by 2010.⁶⁷ Less developed nations continue the trend of ever-increasing regional influence as the numbers of submarine operators expanded from 16 to 22 during the 1990s, increasing fleet numbers by 50%. This metric alone is not significant but for the advances in air independent propulsion (AIP) systems and the relative affordability for even small nations to acquire a basic subsurface capability. Amplifying this point is the 2006 statistic that world-wide diesel submarine orders totalled approximately 45, the majority

⁶³CdnMilitary.ca, "Arctic/Offshore Patrol Ship," <http://www.cdnmilitary.ca/?p=28>; accessed 12 March 2008.

⁶⁴Alanna Mitchell, "The Northwest Passage Thawed," *Globe and Mail*, 5 January 2000, p. A9.

⁶⁵Dianne Demille and Stephen Priestly, "Stephan Harper Announces the New Defence Policy as Put Forward by the Conservative Party," *Canadian American Strategic Review*, <http://www.sfu.ca/casr/ft-harper1-3.htm>; accessed 12 March 2008.

⁶⁶Cdr Nicolas Leak, *Submarine Threat* (Ottawa: DND, DMARSTRAT, 2007), 2 and "Submarines" in *Janes Underwater Warfare Systems*.

⁶⁷While less developed nations are procuring modern submarines, they also need to gain experience to operate them. This inexperience is offset by technologies that provide substantial capabilities even to crews who are less trained and experienced. Leak, *Submarine Threat*, p. 2.

with AIP systems that provide the ability to operate under ice for up to several weeks.⁶⁸ Though a less developed nation's submarine capability is not a direct threat to Canada's Arctic, it speaks to the intent of regional players to exert their influence. It also speaks to the proliferation and affordability of this technology, and the future use of these platforms in non-traditional roles, given that the mere suspicion of a submarine threat requires considerable effort to counter.⁶⁹

Trans-national crime is a potential threat to national security. Given the proliferation of illegal drugs,⁷⁰ even submarines have been known to facilitate narco-trafficking.⁷¹ Trans-national crime affects Canada's major ports, and the RCMP estimates that between 2.5 to four million people cross the border illegally every year.⁷² Although targeted entry points are generally in southern Canada, rural areas become more attractive when enforcement in population centers is increased. As enforcement in southern areas evolves, innovation and boldness will drive smugglers further north to drop off their human cargoes: witness the rescue of 150 Sri Lankan immigrants off of

⁶⁸*Ibid.*, p. 2.

⁶⁹"The possible presence of a single submarine ties down numerous opposing naval forces and restricts their freedom of operations. It is just this type of deterrent value which, in the end, makes the submarine an appealing platform for less developed nations. By 2025, with total purchase packages including training as well as equipment, some of these navies could possess a significant open ocean operational capability, and certainly will have a well-developed capability to operate in coastal regions. For most nations, the acquisition of at least the four submarines required to maintain a ready force of two is within economic reach." Director General Intelligence, *Threat to Canadian Maritime Forces: A Look to 2025*, in Leak, *Submarine Threat*, p. 2.

⁷⁰In 2006, the United Nations estimated that the worldwide illegal drug trade a \$322 billion activity. Sheryl Ubelacker, "\$332-Billion Illicit Drug Trade Fuelling HIV Infections Around World: Expert," http://www.unodc.org/pdf/brazil/word_midia/15082006cbc.doc; accessed 12 March 2008.

⁷¹In 2000, a 100' long submarine was discovered under construction in Columbia. It was estimated to have been able to carry 150 tons of cocaine. CNN.com, "Submarine Found in Colombian Andes," <http://archives.cnn.com/2000/WORLD/americas/09/07/colombia.sub/>; accessed 12 March 2008. The suggestion that a narco submarine would be used today to ferry drugs into Canadian waters from typical sources in the Caribbean or South America is far-fetched, but so was consideration of a 9/11-style attack on the World Trade Center on 9/10. While there is no urgent need to respond to a scenario like this, planning for it should not be dismissed altogether. The author's discussion with personnel involved in pre-9/11 contingency planning indicated that, against the backdrop of its 1993 bombing, a passenger jet 'missile' attack was considered to be a possible terrorist action against the World Trade Center. However, it was dismissed as unlikely to occur and the possibility of multiple and simultaneous 'missiles' was not considered.

⁷²Royal Canadian Mounted Police, "Human Smuggling Fact Sheet," http://www.rcmp-grc.gc.ca/imm_pass/fact_human_smug_e.htm; accessed 12 March 2008.

the Newfoundland coast in 1986,⁷³ the 1987 illegal landing of 174 Sikhs in a rocky cove on the southern coast of Nova Scotia,⁷⁴ and the 1999 dropping of smuggled Chinese at the remote Gilbert Bay in the Queen Charlotte Islands.⁷⁵ Incredibly, a Romanian sailed into Grise Fjord in 2006 attempting to enter Canada via Greenland.⁷⁶ Obviously, surveillance of remote coastal areas remains important. Two high frequency surface wave radar sites, both in Newfoundland, can track surface vessels as far out as 170 nm. This means that they monitor only a small portion of Canada's coastline.

Over 10,000 nuclear scientists and 60,000 biological weapon industry employees have lost their jobs in the former Soviet Union since the end of the Cold War,⁷⁷ many of them with low or no employment opportunities. Coupled with over 1,000 tons of fissile material in storage, the potential for a terrorist organization to exploit disaffected and unemployed scientists to provide both the knowledge and material to construct rudimentary WMD exists. The Northern Sea Route from Russia around the pole provides one avenue of approach to North America that is currently viable. The massive Murmansk shipyards could provide transportation to an organized terrorist outfit. The US identifies its biggest present threat as the spread of an infectious pathogen to its shores.⁷⁸ Entry to North America of such a WMD could be via an Arctic port and, given internal transportation infrastructure, travel into central North America would be possible. Canada cannot afford to have another border crossing incident such

⁷³Katherine Wright, "Sri Lankan Migrants Rescued Off Newfoundland," *The National* (11 August 1986), http://archives.cbc.ca/on_this_day/08/11/; accessed 13 March 2008.

⁷⁴John F. Burns, "Canada Seizes Freighter Believed to Have Put 174 Sikhs on Shore," *New York Times*, 14 June 1987.

⁷⁵Tom Fennel, "Immigration/Refugee Controversy," *Macleans Magazine*, (23 August 1999).

⁷⁶RCMP Cpl Jimmy Akavak, discussion with the author, 5 March 2008, Iqaluit.

⁷⁷Brian D. Finlay, "Russian Roulette: Canada's Role in the Race to Secure Loose Nuclear, Biological and Chemical Weapons," *International Journal* Vol. 61 (Spring 2006), <http://proquest.umi.com/pqdweb?did=1079325821&sid=3&Fmt=3&clientId=1711&RQT=309&VName=PQD>; accessed 15 March 2008.

⁷⁸McConnell, *Annual Threat Assessment of the Director of National Intelligence*, p. 44.

as the 1999 case of Ahmed Ressam, the “millennium bomber.”⁷⁹ Its relationship with the US relies on trust that Canada does its part to prevent it from becoming a base for threats to its allies.⁸⁰

The south, a populous and target-rich environment, is relatively well organized to deal with terrorist actions. Emergency and disaster response plans exist and are sometimes exercised using available resources and infrastructure. What of a terrorist event in the Arctic? Certainly it would likely be less catastrophic to life than an attack in the south, but terrorist actions need not be violent. As Devine and Rafalko explain, they must establish only a level fear, a psychological phenomenon.⁸¹ Even a limited terrorist operation in a remote area of Canada would have a profound and lasting impact. For example, thousands of kilometres of oil and gas pipeline infrastructure are unguarded. A simple attack against any distribution line, such as that flowing south from Norman Wells or against distribution pads servicing the planned Mackenzie Gas Project near Tuktoyaktuk, would have a deleterious impact on the fragile Arctic environment. Despite the improving ability to monitor the southern borders of ‘fortress’ North America, the far reaches of the Arctic still remain an Achilles Heel.

Environmental security involves consideration of several factors, the most significant of which is climate change and how Canada will adapt. The Intergovernmental Panel on Climate Change (IPCC) 2007 Report notes that the “warming of the climate system is unequivocal;”⁸² global warming is an irrefutable

⁷⁹Ian MacLeod, “U.S. Security Chief Raises Spectre of Extremists Crossing the Border From Canada,” *The Gazette*, 12 February 2008.

⁸⁰Privy Council Office, *Securing an Open Society*, Chap. 2.

⁸¹Philip E. Devine and Robert J. Rafalko, “On Terror,” *Annals of the American Academy of Political and Social Science*, Vol. 463, International Terrorism (September 1982), p. 41.

⁸²*Arctic Climate Impact Assessment: Key Findings* (Cambridge: Cambridge University Press, 2004), <http://amap.no/acia/>; accessed 10 February 2008, p. 1.

phenomenon that has gained world-wide acceptance.⁸³ The IPCC projects an increase of global green house gas emissions (GHG) emissions by 25-90% between 2000 and 2030.⁸⁴ Things will get worse thereafter: Princeton University data shows an increase of at least 110% by 2057.⁸⁵ This means a continued trend of global temperature increases whose effects will be amplified in the world's colder climates.

A 2004 study by the Arctic Council and the International Arctic Science Committee identified that summer month sea-ice had declined by 15-20% over the past three decades. The National Snow and Ice Data Center reported in September 2007 that the Arctic sea ice extent dropped to 4.13 million km², 38% below the 30 year average and 24% below the previous 2005 level.⁸⁶ The University of Illinois has charted Arctic sea ice coverage since 1900. Its data reveals that 2007 summer ice coverage was half of what it was in 1910.⁸⁷ The alarming point is that the European Space Agency identified the average annual drop to be 100,000 km², a fraction of last summer's decline; this hugely accelerated melt rate was not predicted. Additionally, 41% of the perennial ice has disappeared over the past 23 years.⁸⁸ A US Navy report predicted in 2001 that within five to 10 years the NWP will be open to non-strengthened vessels for at least in one month each summer.⁸⁹

⁸³ Of the 75 studies that involve more than 29,000 observational data series spanning at least 20 years since 1990, 89% are consistent with showing significant change in physical and biological systems as a response to warming. *Ibid.*, p. 3.

⁸⁴*Ibid.*, p. 6.

⁸⁵Bill McKibben, "Carbon's New Math," *National Geographic Magazine* (October 2007), p. 37.

⁸⁶"Arctic Sea Ice Minimum Shatters all-Time Record Low, Report Scientists," *Science Daily* (21 September 2007), <http://www.sciencedaily.com/releases/2007/09/070920160226.htm>; accessed 1 March 2008.

⁸⁷William Chapman, "Northern Hemisphere Sea Ice Extent," University of Illinois, <http://arctic.atmos.uiuc.edu/cryosphere/IMAGES/seasonal.extent.updated.jpg>; accessed 1 March 2008.

⁸⁸Perennial ice is the thick, hard, multiyear ice that forms the majority of the polar ice cap. Scott G. Borgerson, "Arctic Meltdown: The Economic and Security Implications of Global Warming," *Foreign Affairs* 87, no. 2 (March/April, 2008), p. 1.

⁸⁹Whitney, Bradley & Brown Inc., *Naval Operations in an Ice Free Arctic* (Washington, DC: US Navy, 2001), <http://www.natice.noaa.gov/icefree/FinalArcticReport.pdf>; accessed 1 March 2008, p. 12.

We have seen that prediction come to pass. In 1905 Roald Amundson took two and a half years to complete the first transit of the NWP. In 2007, for the first time in its history, the NWP was free and navigable for 36 consecutive days, allowing a non-sea ice capable commercial vessel ample time to transit it unhindered.⁹⁰ This validated the idea that routine shipping could transit between European, western North American, and Asian markets expeditiously and at a lower theoretical cost than traditional routing via the Panama Canal.⁹¹

The first-order impact of global warming on the Arctic is temperature change. Surface temperatures in the Arctic will increase from 7-10°C by 2100,⁹² increasing the open water extent of both the NWP and the Northern Sea Route. Subsequent second-order effects will be significant and numerous: accelerated sea-ice melt, precipitation increase by upwards of 30%, changed ocean currents accelerating heat transfer north, and rising sea levels. Third-order effects of global warming will disrupt the Arctic's interconnected natural habitats. Increased erosion will eat away waterfowl breeding grounds in low lying coastal areas, as already occurs in Northern Alaska. Polar bear populations will decline as they drown, exhausted from swimming tens of miles to reach their traditional ice pack hunting grounds. Seal predation will subsequently decline as a result of fewer polar bears, thus causing increased seal numbers to stress their Arctic

⁹⁰Transit data for the 2007 NWP shipping was unknown at the time of writing. Michael Byers reports that "According to the Canadian Coast Guard, 86 ships entered Canada's Arctic waters last year, including research vessels from Denmark, Germany and Russia. There were 11 transits of the Northwest Passage, five of them by cruise ships." "Sovereignty Will Solve the Northwest Passage Dispute," http://www.pugwashgroup.ca/events/documents/2007/2007.08.11-Byers_article.pdf; accessed 18 April 2008.

⁹¹Franklyn Griffiths deconstructs today's associated costs burdening the shipping industry on transit routes through the NWP today. However, given the non-linear impact of climate change and the rate of innovation that developed nations exhibit, too many variables exist to preclude future routine NWP transits as unviable. "Pathetic Fallacy: That Canada's Arctic Sovereignty is on Thinning Ice," *Canadian Foreign Policy* (Spring 2004).

⁹²*Arctic Climate Impact Assessment*, p. 27.

Ocean biomass food source.⁹³ Melting permafrost and increased storm ferocity due to the opening of previously ice-covered ocean areas will accelerate coastal erosion, already evident in Alaska and parts of the Russian Arctic.⁹⁴ Additionally, erosion in Tuktoyaktuk threatens both cultural and archaeological sites and has forced the abandonment of an elementary school, housing, and other buildings.⁹⁵ Changes to the permafrost impact pipelines, structural foundations, bridges, roads, airports, and built up areas. The dependency on winter ice roads and summer water routes will be stressed as roads become impassable and river flow rates increase with elevated precipitation and melt.⁹⁶ As permafrost deterioration continues, infrastructure degradation will force an increasing reliance on domestic shipping to supply and service Arctic communities and particularly Arctic-based resource development.

The net result of climate change will affect Arctic habitats. Although impact will be slow at first, it will be unrelenting. Additionally, effects could manifest in cultural and community endangerment as migration from rural areas to urban hubs occurs; some loss of Inuit languages and heritage would certainly follow. Sheila Watt-Cloutier, the Chair of the Inuit Circumpolar Conference, described in 2002 how the changing Arctic was already making it “increasingly difficult for Inuvialuit [people] to ‘read’ the land, to follow the seasons, and to travel safely.”⁹⁷ Ultimately, climate change will test Canada’s

⁹³The US Department of the Interior estimates a 2/3 reduction of polar bear population by 2050. Mike Gauldin and Karen Wood, “Future Retreat of Arctic Sea Ice Will Lower Polar Bear Populations and Limit their Distribution,” <http://www.usgs.gov/newsroom/article.asp?ID=1773>; accessed 10 February 2008.

⁹⁴Deborah Williams, “Policies of Change: Adapting to a Warming Arctic,” <http://www.chinadialogue.net/article/show/single/en/1489-Policies-of-change-adapting-to-a-warming-Arctic>; accessed 10 February 2008 and US Army Corps of Engineers, *Shishmaref Relocation and Collocation Study*, 2004, <http://www.poa.usace.army.mil/en/cw/shishmaref/relocation.pdf>; accessed 10 February 2008.

⁹⁵*Arctic Climate Impact Assessment*, p. 940.

⁹⁶Carman, “Economic and Strategic Implications of Ice-Free Arctic Seas, p. 178.

⁹⁷Sheila Watt-Cloutier, “Presentation to the Harvard Club,” (Ottawa, 4 February 2002), <http://www.inuitcircumpolar.com/index.php?ID=78&Lang=En>; accessed 2 March 2008.

resolve to secure its borders, enforce the sovereignty over its sparsely settled areas, and manage the global impact of the unrelenting and dramatic challenge that it will bring.

Canada's North acts as a "sink for atmospheric toxic substances."⁹⁸ Pesticides, industrial chemicals, and by-products make up this group known as persistent organic pollutants. These pollutants most frequently enter Arctic ecosystems via long-range transport systems such as wind, precipitation, and ocean currents,⁹⁹ but threats to Canada's Arctic are not entirely externally sourced. Post-war military development "traced a series of scars across the region"¹⁰⁰ leaving significant parts of the landscape torn up and ecologies damaged and contaminated by industrial wastes. The potential to endanger the Arctic lies within Canadian industry as well. From 1985 to the late 1990's, oil was drilled on Cameron Island, north of Resolute, and transported to market in Montreal.¹⁰¹ Though only two or three voyages were made annually, this demonstrated that tanker operations in Arctic waterways are viable on a routine basis rather than just the singular Manhattan and Polar events. Given today's price of oil and natural gas, which have witnessed \$140/barrel and \$13/million BTU, the economics of maritime transport are even more compelling than before. Industry will not wait. The private sector is already building ice-capable ships to meet expected requirements for Arctic-capable oil tankers: 262 ice-capable ships were operating in 2005 with 234 more on

⁹⁸Governments of Northwest Territories, Nunavut, Yukon, *Developing a New Framework*, p. 42.

⁹⁹Pollutants include DDT, chlordane, toxaphene, mirex, aldrin, dieldrin, endrin and heptachlor, PCBs, hexachlorobenzene, dioxins and furins. Parks Canada, "Airborne Pollutants: Our Chemical Heritage," [http://www.pc.gc.ca/pn-
np/bc/YOHO/natcul/natcul17_E.asp](http://www.pc.gc.ca/pn-
np/bc/YOHO/natcul/natcul17_E.asp); accessed 2 March 2008.

¹⁰⁰Lackenbauer and Farish, "The Cold War on Canadian Soil," p. 927.

¹⁰¹G. R. Morrell, *et al*, *Petroleum Exploration in Northern Canada* (Ottawa: Department of Indian and Northern Affairs, 1995), p. 3.

order.¹⁰² Nonetheless, the 1989 Exxon Valdez's 11 million gallon oil spill demonstrated that any accident involving hydrocarbon transport would be catastrophic to the Arctic environment.¹⁰³ As the 1944 Cleveland East Ohio Gas Explosion demonstrated, the effects from a liquefied natural gas tanker explosion would be equally catastrophic to local infrastructure and the environment, though long-term effects outside of populated Arctic areas are not fully understood.¹⁰⁴ These environmental threats to Canada's Arctic are particularly disconcerting given that its national identity is tied to stewardship of the region and its peoples.

The mention of Canadian "sovereignty," Donald McRae suggests, "conjures up images of Canada losing its national heritage in the north" as the US asserts its rights to NWP access over Canada's own claims to it; this is a message that "resonates powerfully" with the Canadian public.¹⁰⁵ As a 2002 poll revealed, "45% of Canadians believe Canada will lose some of its sovereignty or control over its Arctic territory to the

¹⁰²Borgerson, "Arctic Meltdown." It is interesting to note that apart from six CCG icebreakers, Canada only has one Arctic-capable icebreaker in its merchant marine, the MV Arctic.

¹⁰³Industry will likely continue to push ahead with expanding the Arctic shipping route envelope and self-imposing regulations to avoid expenses like the Valdez's \$3.4 billion clean up cost and \$2.5 billion fine. MSNBC.com, "Supreme Court to Review Exxon Valdez Case," <http://www.msnbc.msn.com/id/21528042/>; accessed 16 March 2008.

¹⁰⁴The effects from an LNG tanker accident would be short-term in nature and limited to a localized intense heat as LNG vaporizes and explodes. Ray Lemberg calculated the probability of an Arctic LNG accident as 1/10000. The LNG Shipping newsletter identifies that as of 2006, over 47000 LNG tanker transits have been conducted world-wide: "there has never been a major spill of LNG; no LNG containment system has been breached; and no crew member has ever been killed as a result of a cargo incident." Similarly, given increased regulation and safety standards for Arctic oil tanker operations, the probability of an accident is 3/10000. Ray Lemberg, "Hydrocarbon Transport Risk Assessment," in *The Challenge of Arctic Shipping*, ed. David L. VanderZwaag and Cynthia Lamson, 191-210 (Montreal: McGill-Queens University Press, 1990), 197,198 and LNGShipping.com, "47,000 Successful Voyages and Counting," <http://www.lngworldshipping.com/content/news/compNews224.htm>; accessed 30 March 2008. Additionally, access to Canada's Arctic could be cause for environmental concern as non-tanker and non-ice-strengthened shipping operators also capitalize on the NWP. Already ecotourism operators have taken root in the Arctic, albeit not yet in large numbers. As has been seen in southern coastal regions, invasive species infestations have occurred as a result of the marine industry's practice of pumping bilge tanks, though prohibited by statutes such as the AWPPA and others. Though regulated, carriers potentially could introduce new species to Arctic marine ecology that could impact food chains by competition or disease.

¹⁰⁵Donald McRae, "Arctic Sovereignty? What is at Stake?" *Behind the Headlines* 64, no. 1 (January 2007), p. 1.

U.S. over the next 25 years.”¹⁰⁶ The main focus of a perceived loss of psychological security in the Arctic is obviously NWP-centric; nonetheless, other issues arise as well. As the status of the NWP in the international arena remains in limbo, an eventual increase in foreign traffic could arise. As the Arctic Ocean ice pack recedes northward, greater international fishing stress could build. Without Canadian-established, internationally accepted shipping and environmental policies in place to govern the area, Canadian littoral waters could well suffer the influence of increased maritime traffic. All of this equals a perceived loss of control over what could happen in Canada’s backyard, which is one reason why the current federal Arctic policy is a step in the right direction.

Canada is a maritime nation that relies on the unrestricted freedom of the world’s commerce routes. Approximately 80% of Canada’s foreign trade is with the US and 40% of that trade is by sea; the Association of Canadian Port Authorities reports that \$100 billion, one fifth of Canada’s total foreign trade, is handled annually by Canadian ports.¹⁰⁷ The trend of globalization, facilitated by technology, has opened up once local and regional economies to what can be called today a truly global market that has limited restrictions to accessibility.

At any given time approximately 120,000 vessels ply international waters. National interests revolve around economic viability and sustainability, therefore this snapshot of daily maritime traffic brings home the importance to Canada of maritime trade and trade routes. Any impediments to the flow of these goods, either in or out,

¹⁰⁶Public Opinion Poll conducted October 2002 by the Centre for Research and Information on Canada, as reported by JTFN presentation to Assistant Deputy Minister (Policy) July 2005. LCdr Ivan Russell, JTFN HQ, email to author, 24 October 2007.

¹⁰⁷Association of Canadian Port Authorities, “About ACPA,” <http://www.acpa-ports.net/about/index.html>; accessed 13 March 2008.

would have crippling long-term effects on the Canadian economy, as already demonstrated by the 2005 British Columbia truckers' union strike which cost the provincial economy \$75 million per day.¹⁰⁸

In 1999, a report from the US Commission on National Security in the 21st Century stated: "The national security of all advanced states will be increasingly affected by the vulnerabilities of the evolving global economic infrastructure."¹⁰⁹ That the trade equivalent of 90% of the global GDP traverses the world's oceans annually is testimony to the commission's idea of vulnerability.¹¹⁰ Lurking somewhere amongst that trade, US intelligence officials have identified about 15 freighters that they believe are controlled by al-Qaeda or could be used by a terrorist network to ferry operatives, bombs, money or commodities.¹¹¹ The potential for global economic disruption if roadblocks to maritime highways, such as terrorist actions or regional strong-arming, certainly exists. Numerous choke points around the world (the straits of Gibraltar, Hormuz, and Malacca; the Panama and Suez canals; the Red Sea; the Cape of Good Hope; and the Horn of India) are vulnerable to collision, mines, terrorist acts, or piracy.¹¹² The closure of any one of these points could cause a huge shift in trade route

¹⁰⁸CBC.ca, "Ottawa Urged to End BC Truckers Strike," <http://www.cbc.ca/canada/story/2005/07/26/truckers-050726.html>; accessed 13 March 2008.

¹⁰⁹The United States Commission on National Security in the 21st Century, *New World Coming: American Security in the 21st Century*, <http://govinfo.library.unt.edu/nssg/Reports/NWC.pdf>; accessed 13 March 2008, p. 4.

¹¹⁰Geoffrey Till, *Sea Power: A Guide for the Twenty-First Century* (Abingdon, UK: Frank Cass, 2006), p. 352.

¹¹¹John Mintz, "15 Freighters Believed Linked to Al Qaeda," *WashingtonPost.com* (31 December 2002), <http://www.washingtonpost.com/ac2/wp-dyn/A56442-2002Dec30?language=printer>; accessed 13 March 2008. Some estimates identify up to 50 vessels under terrorist control plying the world's oceans. Colin Robinson, "Al Qaeda's 'Navy' - How Much of a Threat?" <http://www.cdi.org>; accessed 13 March 2008.

¹¹²258 pirate attacks were reported in the Straits of Malacca alone in the past five years. Peter Gwin, "The Strait of Malacca: Dark Passage," *National Geographic Magazine* (October 2007), 134. Since 2002, NATO vessels have escorted merchant shipping through the Straits of Gibraltar to protect against such events. "JFC Naples Fact Sheet," http://www.afsouth.nato.int/organization/CC_MAR_Naples/Factsheets/SNMG2.htm; accessed 13 March 2008.

usage that would be felt worldwide. This bears on the future development of the NWP as an alternative trade route.

Economic security is closely linked with sovereignty in the energy sphere. With the bulk of world oil shipments made by sea,¹¹³ the Senate Select Committee on Intelligence aptly observed in February 2008 that “Geopolitical uncertainties and tensions heighten the risk of a major oil supply disruption and the attendant negative repercussions for the global economy.”¹¹⁴ Given the huge hydrocarbon resource potential of the Beaufort Sea basin and the unresolved nature of the Alaska/NWT boundary dispute,¹¹⁵ the stakes are high if Canada does not retain effective control of its interests. Foresight tells us that the rationale exists to take a proactive stance in planning sovereignty (infrastructure and governance) and security requirements today so that they can be in place in the next 25-50 years when needed. Unfortunately, hindsight tells us that the opportunity to initiate action before it is actually required happens rarely.

‘Alarmist,’ ‘extreme,’ and ‘not likely’ are qualifiers that might be used to describe those scenarios presented above. The point of this discussion, however, is to identify that as a result of the inevitable and increasing consequences of climate change, some of these scenarios can and likely will be acted upon by a determined organization not today, or tomorrow, but at some point in the future. As Kyle Christensen articulates, “the Arctic exhibits some of the harshest conditions on the planet, and the likelihood of any potential adversary entering Canada in this way and posing a credible threat is

¹¹³The US, India, and China import by sea between 90-95% of their total annual oil imports; Japan is wholly reliant on sea import of oil. Dennis Blair and Kenneth Lieberthal, “Smooth Sailing: The Worlds Shipping Lanes are Safe,” *Foreign Affairs* 86, no. 3 (May/June 2007).

¹¹⁴ McConnell, *Annual Threat Assessment of the Director of National Intelligence*, p. 42.

¹¹⁵Huebert, “Northern Interests and Canadian Foreign Policy,” p. 8.

considered remote and unlikely.”¹¹⁶ When modern threats are analyzed using the principles, characteristics, and tenets of war, Christensen’s sentiment opens an adversary to the notion of exploiting that which Canada deems unlikely.

In the end, an exhaustive list of possible threats to Canadian security is impossible to compile. Today’s militaries do not plan to fight yesterday’s battles; they attempt to apply yesterday’s lessons to the battle next anticipated tomorrow. On 9/11, Al Qaeda executed an asymmetric attack at a time and place and with an effect never previously anticipated. The difficulty Canada faces with respect to securing its Arctic can be summed by Horn and Reshke, who cite two Chinese strategists warning that “there is no means which can not be used in war and there is no territory or method which can not be used in combination.”¹¹⁷ Canada cannot fully comprehend when, where, and how future challenges will appear. CF personnel stationed in Europe could scarcely believe the collapse the Soviet Union in 1989, let alone the rapid transition to a large-scale conventional war against a new and unforeseen enemy in Iraq only two years later.¹¹⁸ It is essential that Canada continues to consolidate its presence in the Arctic, taking advantage of this period in history when North America remains relatively free from direct threat.

That Canada’s numerous policy documents identify the Arctic a priority for defence today contrasts with thinking during the 1990s. The 1994 Defence White Paper and the 1998 Military Assessment by the Director General Strategic Plans identified

¹¹⁶Kyle D. Christensen, *Arctic Maritime Security and Defence: Canadian Northern Security Opportunities and Challenges* (Ottawa: Defence R&D Canada, 2005), p. 45.

¹¹⁷LCol Bernd Horn and Regan G. Reshke, “Defying Definition: The Future Battlespace,” in *Towards the Brave New World: Canada’s Army in the 21st Century*, ed. LCol Bernd Horn and Peter Gizewski (Kingston, ON: Directorate of Land Strategic Concepts, 2003), p. 93.

¹¹⁸LCol Neil McDermid, a former CF18 pilot stationed in CFB Lahr, Germany, discussion with the author on the changing nature of warfare, 31 January 2008.

then that there was “no immediate direct military threat to Canada.”¹¹⁹ However, 9/11 changed the international landscape. With Afghanistan and the War on Terror featuring in the headlines almost daily, Canadian military activities outside Canada receive significant attention; this is interesting considering that Canada’s activities in support of the defence of the nation and North America remain its foremost official priorities. Though national and continental defence are essentially a singular issue, recent developments in Canadian military initiatives in the Arctic will make significant progress towards meeting both of those priorities.

CANADIAN ARCTIC SOVEREIGNTY: THE THREAT DEFINED

The sanctity of a state’s sovereignty over its land is universally held in firm belief. By contrast, “the idea of sea boundaries has never received such solid support in comparison to their land counterparts.”¹²⁰ This is particularly true for Canadian sovereignty of its territory. With the exception of the Strait of Juan de Fuca and Machias Seal Island,¹²¹ talk of Canadian sovereignty revolves exclusively around its maritime Arctic borders.

What complicates Canadian sovereignty over its Arctic waters is the historic use of ice-locked areas as if they were an extension of the land itself. As climate change progresses, previously ice-bound regions will become increasingly ice-free, leaving their use by maritime traffic a possibility and adding fuel to the debate about the status of their ownership. In a 2002 speech, Sheila Watt-Cloutier, then President of the Inuit

¹¹⁹DND, *1994 Defence White Paper*, Highlights Chap. P. 3.

¹²⁰*Ibid.*, p. 14.

¹²¹The specific sovereignty of both these regions remains in dispute with the US. Central Intelligence Agency, “The World Fact Book,” <https://www.cia.gov/library/publications/the-world-factbook/geos/ca.html>; accessed 17 March 2008.

Circumpolar Conference, repeated former External Affairs minister Joe Clark's words from 1985:

"Canada's sovereignty in the Arctic is indivisible. It embraces land, sea and ice. It extends without interruption to the sea-ward facing coasts of the Arctic islands. These Islands are joined and not divided by the waters between them. They are bridged for most of the year by ice. From time immemorial Canada's Inuit people have used and occupied the ice as they have used and occupied the land."¹²²

Huebert identifies six areas that scholars emphasize as challenges to Canadian Arctic sovereignty.¹²³ Although these are mainly legal in nature, components of political sovereignty also come to light, as do undertones of physical and economic security, exemplifying the interrelationship between security and sovereignty.

The status of the NWP is the most important sovereignty issue to Canada. There are seven charted shipping routes through the NWP. The US, the European Community, and Japan maintain that the NWP is an international strait connecting the Arctic and Atlantic Oceans, thus permitting right of both innocent passage and transit passage.¹²⁴ Canada's position is that, since the 1970 increase of Canadian TTW from three to 12 nautical miles, the NWP (particularly the most northerly route connecting the Beaufort Sea with Baffin Bay via M'Clure Strait and Parry Channel) is an internal

¹²²Joe Clark, 1985, quoted in Sheila Watt-Cloutier, "Inuit, Climate Change, Sovereignty, and Security in the Canadian Arctic," 25 January 2002, <http://www.inuitcircumpolar.com/index.php?ID=91&Lang=En>; accessed 17 March 2008.

¹²³Huebert, "Northern Interests and Canadian Foreign Policy, pp. 2-12.

¹²⁴Innocent passage means navigation through a territorial sea for the purpose of traversing it without entering internal waters or calling at port outside internal. It is interesting that right of innocent passage also includes the right of aircraft to transit over the waterways. Though this right is maintained by the international community, it is not known to ever be acted upon. In reality, it would seem to be impractical given the NWP's great isolation from any airfield that could support foreign air operations through the passage. Additionally, the numerous air corridors that traverse the Arctic already provide the utility of overflight for commercial purposes with the oversight of Nav Canada and Transport Canada. Transit passage, on the other hand, applies more specifically to straits which are used for international navigation between one part of the high seas or an exclusive economic zone and another. All ships and aircraft enjoy the right of transit passage. United Nations, "Convention on the Law of the Sea, Part II, Articles 18 and 38," http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm; accessed 30 March 2008.

waterway over which Canada has legal title and full control.¹²⁵ Indeed, the CF's Joint Task Force North (JTFN) now refers to the NWP as "Canadian Internal Waters."¹²⁶

In 1973, Canada for the first time officially claimed historic title to all the waters encompassed within the Arctic Archipelago, the rationale for which is adeptly communicated by Watt-Cloutier's comments. Norway, Denmark, the US, and Russia have also used this approach to lay claim to historic waters in their respective regions. Additionally, the strait baseline approach to defining the perimeter of the Canadian Arctic Archipelago was established effective 1 January 1986.¹²⁷ This effectively enclosed the entire NWP within Canadian TTW in accordance with the landmark 1951 Fisheries Case, the International Court of Justice's (ICJ) ruling in favour of Norwegian application of the strait baseline system.¹²⁸ The implication of this, Canada maintains, is that the TTW limit, historic title, and the strait baseline system meet the geographic criterion of UNCLOS; therefore, neither transit passage nor innocent passage exists for foreign traffic.¹²⁹

The essence of Canada's dispute with the international community over the NWP relates to the applicability of the UNCLOS functional criterion that establishes the Passage as an international strait by virtue of its use as a route by international marine

¹²⁵It is interesting to note that the TTW expansion to 12 NM and the introduction of the AWPPA was in a large part Prime Minister Pierre Trudeau's response to the significant Canadian public outcry generated by the Manhattan's 1969 transit rather than in response to Government foresight. Ivan Head and Pierre Trudeau, *The Canadian Way: Shaping Canada's Foreign Policy, 1968-1984* (Toronto: McClelland & Stewart, 1995), p. 55.

¹²⁶Col Drew Artus in Nathan VanderKlippe, "Northwest Passage Gets Political Name Change," *Edmonton Journal* 9 April 2006.

¹²⁷Donat Pharand, *Canada's Arctic Waters in International Law* (New York: Cambridge University Press, 1988), p. 155.

¹²⁸*Ibid.*, p. 141.

¹²⁹"Canada's claim to sovereignty over the internal waters within its Arctic Archipelago, including the Northwest Passage, is solid, despite protests from the US and certain European countries." "The Legal Opinion on the Northwest Passage, Appendix XVII," in *Managing Turmoil, 2006 An Interim Report of the Standing Senate Committee on National Security and Defence*, <http://www.parl.gc.ca/39/1/parlbus/commbus/senate/com-e/defe-e/rep-e/RepOct06-e.pdf>; accessed 30 March 2008, p. 217.

traffic.¹³⁰ The ICJ's 1949 watershed decision on the Corfu Channel Case appears to rule against Canada's application of the UNCLOS functional criterion.¹³¹ The question is what defines usage sufficient by international shipping to claim an international strait? In the 102 years since Amundsen completed his crossing, approximately 100 vessels have transited the NWP (the majority Canadian).¹³² Is this a sufficient number to justify international usage? It would seem not, given the modern precedents of the Corfu Channel and the Straits of Malacca where, for example, daily commercial transit volumes are 17¹³³ and 138.¹³⁴

Canada needs to retain the right and the authority to control how this waterway is used and also who uses it. As internal waters, unauthorized foreign passage is prevented. As an international waterway, all the world's nations have the right of transit passage through Canada's 'roof.' The potential impact, Huebert notes, is that "rules governing ship construction, safety and environmental standards will be determined by the relevant international organizations - primarily, the International Maritime Organization (IMO)."¹³⁵ Though the AWPPA is the strongest legislation regulating the actions of maritime traffic in Arctic waters, it is a reactive rather than a proactive measure given the very limited Canadian presence in this vast region.¹³⁶ It is not

¹³⁰Pharand, *Canada's Arctic Waters in International Law*, p. 224.

¹³¹International Court of Justice, Corfu Channel Case (Merits) *United Kingdom v. Albania* (1949) ICJ Rep 4, quoted in Huebert, "Northern Interests and Canadian Foreign Policy," p. 6.

¹³²Christensen identifies 62 transits from 1903-2005 whereas Pharand identifies 69 and JTFN estimates 100; of those 100, JTFN identifies 40 vessels of foreign registry. Christensen, *Arctic Maritime Security and Defence* 62-65; Donat Pharand, "The Arctic Waters and Northwest Passage: A Final Revisit," *Ocean Development and International Law* 38, no. 1, (January 2007): 31-33; and LCdr Ivan Russell, JTFN HQ, email to author 25 February 2008.

¹³³Author's telephone inquiry with the Corfu Port Authority, 21 January 2008.

¹³⁴Energy Information Administration, "World Energy Transit Chokepoints," http://www.eia.doe.gov/cabs/World_Oil_Transit_Chokepoints/Full.html; accessed 30 March 2008.

¹³⁵Rob Huebert, "The Shipping News Part II: How Canada's Arctic Sovereignty is on Thinning Ice," *International Journal* 58, no. 3 (Summer 2003).

¹³⁶Transport Canada, *Arctic Waters Pollution Prevention Act*, <http://www.tc.gc.ca/acts-regulations/GENERAL/a/awppa/act/awppa.htm>; accessed 30 March 2008.

certain if this act will stand up to an expanding shipping industry and the accessibility afforded by climate change. More importantly, the potential for a non-Canadian body, like the IMO, to regulate activities within Canadian territory violates sovereign governance over the region.

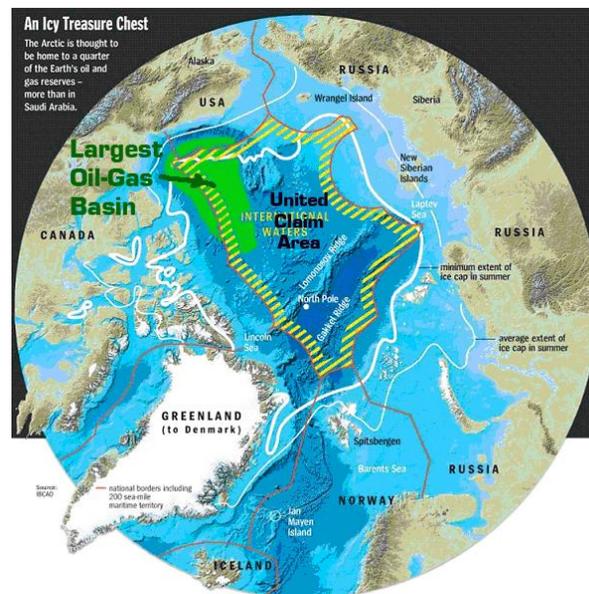


Figure 1: Disputed Arctic Ocean Commons

The Arctic Oceans Commons describes the central portion of the Arctic Ocean, covering an area of approximately two million km² that is both outside the Exclusive Economic Zones (EEZ) agreed upon within the UN and is not controlled by the surrounding nations of Canada, Denmark, Norway, Russia, and the US. Source: United Oil and Gas Consortium Management Group, <http://www.unoilgas.com/arctic-claim-map-07.jpg>; Internet; accessed 30 March 2008.

The international boundaries at the confluence of continental plates also remain highly contentious. Pascal Poirier first proposed the notion of the sector principle to claim territory of these Commons to the North Pole in 1907.¹³⁷ Canada laid claim to this slice of the Arctic Ocean and Archipelago, including the NWP, in 1925 - a claim that

¹³⁷G.S. Graham, review of *Les Problemes politiques du Nord Canadien le Canada et Le Groenland A Qui appartient L'Archipel Arctique?* (These de doctorate) by Yvon Beriault, *International Affairs* vol. 24, no. 2 (April 1948): pp. 272-273.

stretches approximately 420 nautical miles from the northern tip of Ellesmere Island to the North Pole.¹³⁸ This claim has never been universally accepted and conflicts with US and Russian claims. The crux of this issue is the determination of the continental extension of the undersea Lomonosov Ridge. At stake is access to the estimated “ten billion tons of gas and oil deposits and significant sources of diamonds, gold, tin, manganese, nickel, lead and platinum” in the area.¹³⁹ All three countries claim the area as an extension of their respective continental shelves. Only Russia, which ratified UNCLOS in 1997, has completed hydrographic surveying of the extent of its shelf regions.¹⁴⁰

In 2001, Russia initially submitted to the UN Commission on the Limits of the Continental Shelf its claim on the Arctic Ocean in accordance with UNCLOS Article 76.¹⁴¹ The commission requested further refinement of its surveying. Russia continued with its undersea research, completing it with the fanfare of the planting of a titanium flag on the North Pole’s sea bed in August 2007.¹⁴² This symbolic act amplified the necessity for both Canada (which has until 2013 to complete its surveying for UNCLOS submission) and the US (which has not ratified UNCLOS) to accelerate their survey programs. Ominously, Eric Posner, a University of Chicago international law specialist, believes the flag planting signifies Russia’s intent to claim this area

¹³⁸UNCLOS allows an extension of 350 NM based upon the maximum baseline extension. United Nations, “Convention on the Law of the Sea, Part VI, para. 5.

¹³⁹“Putin’s Arctic Invasion: Russia Lays Claim to the North Pole - and All Its Gas, Oil, and Diamonds,” *Daily Mail* 29 June 2007.

¹⁴⁰UNCLOS provides a state with a 10 year window, from the time of becoming a signatory, to map the extent of their continental shelf limits, specifically the areas where the ocean depth drops to 2500 meters and also the foot of the continental shelf extending from a state’s landmass. UNCLOS, part VI, para. 4, 5.

¹⁴¹United Nations, “Submissions to the Commission on the Limits of the Continental Shelf: Russian Submission,” http://www.un.org/depts/los/clcs_new/submissions_files/submission_rus.htm; accessed 30 March 2008.

¹⁴²Editorial, “The Great Arctic Oil Rush,” *The New York Times*, 12 August 2007, <http://proquest.umi.com/pgdweb?index=0&did=1319566731&srchMode=5&Fmt=3&retrieveGroup=0&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1189018903&clientId=1711>; accessed 5 September 2007.

regardless of how the UN Commission rules in the future.¹⁴³ With discussion in 2003 about development of under-ice transport of oil, gas, and nickel using a Typhoon nuclear submarine, Russia seems to be serious about its intent.¹⁴⁴

Denmark's claim to the North Pole rests with its acquisition of Western Greenland from the US back in 1916. The Lomonosov Ridge, the Danes maintain, is an extension of the Greenland shelf. Though its undersea mapping has yet to be completed, Denmark understands the link to potential undersea oil and gas reserves in this area.¹⁴⁵

On the other hand, for the past four years the US has been collecting hydrographic data in the Beaufort Sea and Arctic Ocean without fanfare.¹⁴⁶ The likely American approach is to capture sufficient data to allow it to simultaneously ratify UNCLOS and submit data supporting its claim. With estimates of potential US oil and gas resources of about \$1.3 trillion, the stakes are high. This avenue of a swift decisive strike to claims in its national interest is interesting in that it downplays the urgency and importance of its claims. By not being vocal, the US does not antagonize other nations to race to stake their own claims that could "extend 150 miles farther into the Arctic Ocean than today's maps show."¹⁴⁷

¹⁴³Andrew Chung, "The Arctic Cold War," *The Star.Com*, August 12, 2007, <http://www.thestar.com/sciencetech/ideas/article/245440>; accessed 15 September 2007.

¹⁴⁴Igor Kudrik, "Typhoon Subs to Ship Oil and Gas," http://www.bellona.no/bellona.org/english_import_area/international/russia/navy/northern_fleet/vessels/29577; accessed 30 March 2008 and Thomas Nilsen, "Navy Sub for Metal Transport in Arctic," http://www.bellona.no/bellona.org/english_import_area/international/russia/navy/northern_fleet/general/17841; accessed 30 March 2008.

¹⁴⁵Canada has an outstanding claim to 33 Km² of sea in the Lincoln Sea region that is contested by Denmark and the US; however, all three countries recognize that no economic gain correlates to this area and therefore it remains a "symbolic dispute." Rodney Neufeld, Lawyer for DFAIT, in discussion with the author, 5 March 2008, Iqaluit.

¹⁴⁶Center for Coastal and Ocean Mapping Joint Hydrographic Center, "Law of the Sea Mapping Program," http://www.ccom-jhc.unh.edu/index.php?page=unclos/data.php&p=39&page=law_of_the_sea.php; accessed 30 March 2008.

¹⁴⁷"Redefining the Borders of Every Country of the World [sic] with a Seacoast," <http://insidethebottle.blogspot.com/2008/01/redefining-borders-of-every-country-of.html>; accessed 30 March 2008.

This is, of course, antithetical to Canada's game plan of loudly proclaiming its claims without investing in significant efforts to support them. Michael Byers describes that Canadian mapping efforts in the basin west of Ellesmere Island to the Beaufort Sea would likely take a minimum of four summers of activity supported by two icebreakers.¹⁴⁸ Canada has some lessons to learn from both the Russian and American examples. To hasten Canada's efforts in the Arctic one could reflect upon the notion that "he who acts first, acts with the eventual support of convention." Jon Waterman describes how, in 1945, President Truman unilaterally extended TTW to the edge of the American continental shelf.¹⁴⁹ Follow-on support from the international community resulted in UNCLOS recognition of this limit in 1982. From its actions, it is clear that Russia has taken the lead in today's race. From this two points emerge. First, Canadian efforts, despite recent admirable capital project announcements, may be 'too little too late' to support High Arctic claims by the end of the 10 year UNCLOS window in 2013. Secondly, with only virginal usage of the NWP, Canada still has time to act with resolve to assert its claim to internal waters in the ICJ.

The Canadian-American dispute in the Beaufort Sea also reflects the contested boundaries in the Arctic. Canada asserts that its border with the US extends northward along the 141st meridian into the Beaufort Sea. The US disputes this assertion, maintaining that the Yukon/Alaska border extends following a perpendicular line of equidistance from the coast that cuts eastward into 16,187 km² of Canadian-claimed

¹⁴⁸Michael Byers, "Our Next Frontier: The Arctic Ocean," http://www.oceantrackingnetwork.org/news/pdf/globe_frontier.pdf; accessed 30 March 2008. One interesting aspect of the race to validate national claims is Byers' assertion that the US has utilized nuclear submarines to map undersea portions of the Arctic sea floor. Not surprisingly the US does not claim to have data within 200 nautical miles of any other state for obvious sovereignty reasons. It remains nonetheless ironic that Canada could, through diplomatic channels in the spirit of military and national cooperation, solicit US assistance to acquire sea floor data within its EEZ. This would be consistent with efforts Canada has made with Denmark.

¹⁴⁹"Redefining the Borders of Every Country."

TTW.¹⁵⁰ At issue is the right to a greater portion of the estimated recoverable 12 billion barrels of oil and between 13 and 63 trillion cubic feet of natural gas;¹⁵¹ the link to Canada's economic security and the development of its Arctic cannot be more clear.

The day after the Prime Minister promised to build up to eight new ice-strengthened vessels to patrol the Arctic, US Navy Rear Admiral Timothy McGee "pledged to increase its fleet of ships and other craft in the Arctic."¹⁵² Though the AOPV and several other Arctic projects are positive steps to embolden Arctic sovereignty, it appears that Canada is in an Arctic real estate race with the US and Russia. Furthermore, the US continues to match Canadian initiatives. The USCG intends to build a new station in Barrow, Alaska, in an effort to increase American presence and surveillance in the Beaufort Sea area, regulate ocean usage, and fulfill an increasing need for search and rescue.¹⁵³ Eight months later these seemingly back and forth antics now appear unwittingly by design: the recent Canada/US Model Negotiations on Northern Waters identified nine recommendations, half of which have military undertones including the acceleration of icebreaker acquisitions, to improve regulation of northern waters.¹⁵⁴

Canada's claim to Hans Island, the tiny 1.3 km² rock outcropping in Kennedy Channel between Ellesmere Island and Greenland, dates back to the transfer of British possessions in the Arctic to Canada in 1880. Hans Island was originally discovered by the American explorer Francis Hall on the *Polaris* expedition in 1875 before becoming a

¹⁵⁰"The Legal Opinion on the Northwest Passage, Appendix XVII," in *Managing*, p. 226.

¹⁵¹Todd Wilkinson, "Alaskan Oil Battle May Shift Offshore," *Christian Science Monitor*, 6 May 2003.

¹⁵²Hugo Miller, "U.S. Bolster Presence to Aid Commercial Ships,"

<http://www.bloomberg.com/apps/news?pid=20601082&sid=aK9JSBhBiJMg&refer=canada>; accessed 30 March 2008.

¹⁵³Rachel D'Oro, "Coast Guard Plans to Set Up Arctic Base," *USA Today*, 25 October 2007, http://www.usatoday.com/money/topstories/2007-10-25-1199101700_x.htm; accessed 30 March 2008.

¹⁵⁴Michael Byers and Paul Cellucci et al, "Model Negotiation on Northern Waters," www.igloo.org/ciia/download-nocache/Calendar/modelnegot; accessed 30 March 2008.

Danish possession after the US sold its rights in Northern Greenland in 1916.¹⁵⁵ Public recognition of the island's Canadian lineage arose in 1967 after it appeared on a map of Canada for the first time. Then in 1973 the question of its sovereignty was discussed during negotiations on continental shelf limits with Denmark, but since neither country has acknowledged the other's claim to the island its sovereignty remains unresolved.

National muscle flexing by both countries increased dramatically after August 2001, when a Canadian geologist flew to the island. Between 2003 and 2005, warships and politicians from both countries visited Hans Island to reaffirm their possession of it. Since that time, both countries have refrained from further inflammatory rhetoric and flag raisings, and have agreed to disagree. UN resolution to this dispute seems probable although not urgently required: Foreign Affairs' official position is that Hans Island has actually opened greater dialogue with Denmark, thus improving relations.¹⁵⁶ Does Canada need to assert its sovereignty over this small, desolate island? Though it lies within the national interest of both nations to extend their respective boundaries, without the science to back up its relevance this question will remain hard to answer. In the meantime, Canada and Denmark have been working collaboratively to chart the continental shelf area in the Hans Island region since 2005.¹⁵⁷

Is this a pressing issue with significant impact on Canada? Rob Huebert seems to think so. Without identifying why, Huebert suggests that if Canada lost its claim to the island it would establish a "dangerous precedent."¹⁵⁸ With three other complex Arctic sovereignty disputes, he insists, Canada needs to remain steadfast in its resolve

¹⁵⁵Kenn Harper, "Hans' History," <http://www.canadiangeographic.ca/hansIsland/background.asp>; accessed 30 March 2008.

¹⁵⁶Rodney Neufeld, discussion with the author, 5 March 2008, Iqaluit.

¹⁵⁷Denmark, Ministry of Science and Technology and Innovation, "LORITA-1 (Lomonosov Ridge Test of Appurtenance)," http://a76.dk/expeditions_uk/lorita-1_uk/; accessed 30 March 2008.

¹⁵⁸Huebert, "Northern Interests and Canadian Foreign Policy, p. 12.

to exert its sovereignty. An UNCLOS ruling on Hans Island could be an expeditious affair given the situation, but if settled out of Canada's favour it could prompt other challengers to Canada's Arctic to lodge formal contest under UNCLOS. Therefore it would seem prudent for Canada to continue with its course that the "issue can be resolved within the excellent bilateral relationship that Canada and Denmark have cultivated over 60 years."¹⁵⁹ Canada might not push for an expeditious resolution instead consolidating its Arctic sovereignty in other cases.

In 2002 Huebert discussed with a CCG official the suspected incursions into Canadian waters by Greenland and the Faeroe Islands fishing vessels in search of shrimp and turbot.¹⁶⁰ He believes that this interdiction of fish is on the rise; however, Canada lacks the ability to verify offshore international fishing activities because its maritime surveillance capabilities have atrophied since the end of the Cold War. In the wake of Operation Apollo, the Navy's surface fleet fuel budget was slashed, and the submarine fleet's operability remains abysmal even today. Similarly, the Air Force has been unable to routinely patrol due to significant maintenance programs affecting both the Sea King and the Aurora.¹⁶¹ The Department of Fisheries and Oceans vessels and contracted civilian aircraft do patrol beyond Canada's 200 nm EEZ, but their presence is limited.

Is this illegal fishing a threat to Canadian sovereignty? With the 1995 Spanish 'Turbot War' on the Nose of the Grand Banks as the only reasonable parallel, the

¹⁵⁹DFAIT, "Canada and Denmark Issue Statement on Hans Island," http://w01.international.gc.ca/MinPub/Publication.aspx?isRedirect=True&publication_id=383048&Language=E; accessed 30 March 2008.

¹⁶⁰Huebert, "Northern Interests and Canadian Foreign Policy, p. 13.

¹⁶¹All Aurora Arctic sovereignty flights were cancelled for a six month period beginning in late 2007. CBC.ca, "Canada's Air Force Cancels Surveillance Flights to Arctic for Winter," <http://www.cbc.ca/canada/story/2007/11/13/arctic-surveillance.html>; accessed 30 March 2008.

current issue is of a much smaller magnitude. Because multiple layers of governance initiatives already exist within international frameworks such as The North Atlantic Fisheries Organization and the 2005 National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, there does not appear to be a significant challenge to Canadian sovereignty in this matter. Though the Canadian Chamber of Commerce reported in 2005 that “Canada’s efforts [in fisheries enforcement] to date have been largely ineffective, and there is little to suggest these actions alone will sufficiently curb foreign over fishing,”¹⁶² Canada’s rights over this region are well established. Diplomacy and enforcement need to be relied upon and expanded.

Foreign submarine activity in Canadian Arctic waters remains uncontrolled, which is unlike other sovereignty issues in that unauthorized and submerged entry into a state’s TTW is universally accepted as a hostile act. Although one could argue that what Canada does not know cannot be detrimental to its integrity as a nation, this is false. The opposite holds true: if Canada is unaware of what occurs in its own TTW, it could neither assert sovereignty over transgressions against it nor could it ensure the security of its territory.

Early US submarine transits through Canadian Arctic TTW were conducted under the auspices of Canadian-US defence.¹⁶³ Today, there are rumours that British, Chinese, French, Russian, and US submarines transit under ice-covered Arctic waters without Canadian permission. Recall that territorial control has been discussed as a component of the ability for a state to exercise sovereignty over its lands and waters.

¹⁶²Canadian Chamber of Commerce, “International Affairs 2005: Canadian Custodial Management of Internal Waters,” <http://www.chamber.ca/cmslib/general/IA059.pdf>; accessed 30 March 2008, p. 3.

¹⁶³Pharand, *Canada’s Arctic Waters in International Law*, p. 225.

Griffiths presents a 'Catch-22' situation: if it had the information to prove these unauthorized transits, Canada would have to admit that it did not have the means to control or limit them.¹⁶⁴ Thus it would give credibility to the notion that, in particular, the NWP has long been used as an international strait, a factor that would weigh heavily in any decision by the ICJ. Similarly, the ICJ would look even less favourably upon Canada if Canada had known about unauthorized transits without doing anything about them, such as lodging formal diplomatic protests.¹⁶⁵

THE CANADIAN FORCES: LEADING THE CHARGE NORTH

Canada does not demonstrate a responsible level of Arctic security measures commensurate with its sovereign reign over the region. This is changing. Driven largely by the CF's Directorate of Policy Development, Canada's military recognizes and is addressing the lack of coherent and consistent security policy towards the region. This effort appears to be another swing of the defence policy pendulum, one that hopefully stands the test of future changing governments and public opinion this time round. Internal to Canada, a 'whole-of-government' approach, led by INAC, envisions integrating departments across all three levels of government to maximize effort while minimizing duplication and inefficiency. Nevertheless, defence initiatives seem to come to the forefront. Why is Canada turning to DND to lead its Arctic policy development?

The underlying foundation that allows INAC to carry out its responsibility as "the principal federal department responsible for meeting the federal government's

¹⁶⁴Griffiths, "The Northwest Passage in Transit."

¹⁶⁵ Huebert questions Canada's actions in the event that it did locate the submarine reported by Inuit in Baffin Island's Cumberland Sound in 1999. Huebert, "Northern Interests and Canadian Foreign Policy," p. 10.

constitutional, political and legal responsibilities in the North”¹⁶⁶ is the established security of the North. As discussed, security involves freedom from physical, environmental, economic, and psychological threats. Thus it is not solely a military responsibility, but just as DND has led the way in the past, it will shape the future because it ideally has the capability, the budgetary funding, and the personnel to identify, assesses, synthesize, and act upon the threats within the framework of Government policy. INAC provides only a framework for social governance. Development and diplomatic efforts are no doubt integral components to an overall governance structure of the Arctic, but it seems that military response may in the future be imposed on Canada by external forces. Canada can choose to be proactive, rather than reactive, and the military is responsive, has the personnel, expertise and training, and represents a visible display of government control.

To understand the Arctic from a military perspective requires awareness of what is occurring on and over Arctic lands and on and under its waters. What capability does Canada’s military currently hold to facilitate its Arctic awareness, Common Operating Picture, or Maritime Domain Awareness? In essence, its efforts are largely limited to the Air Force and the Army, despite the Arctic’s maritime qualities.

The bi-national North American Aerospace Defence (NORAD) agreement with the US monitors northern airspace via 41 North Warning System (NWS) radar sites. In response to Russian long-range bomber patrols, Hornet fighter aircraft are vectored to intercept them. The response to air threats thus remains reactive rather than proactive;

¹⁶⁶Indian and Northern Affairs Canada, “Mandate, Roles and Responsibilities,” <http://www.ainc-inac.gc.ca/ai/mrr-eng.asp>; accessed 30 March 2008.

the system also “leaves vast areas of the North without coverage.”¹⁶⁷ Staging out of forward operating locations (FOL) was reduced during the late 1990’s to a few annual deployments; now that the Russian Air Force has increased operations, FOL deployments have also increased significantly.¹⁶⁸ 440 Squadron operates four Twin Otter aircraft out of Yellowknife, NWT, supporting mainly Ranger activities, which are not a primary surveillance platform. Aurora long-range patrol aircraft conduct sovereignty flights, but these have been rare since the end of the Cold War (two taskings completed in 1999, none in 2000, two in 2006, and six in early 2007).¹⁶⁹ Overall, the Air Force remains responsive, in small numbers, to airborne security and sovereignty challenges. It is the nature of future challenges arriving via other mediums that will cause concern.

To facilitate terrain awareness the Canadian Rangers conduct annual enhanced sovereignty patrols, but they are mostly by snowmobile and thus cover limited areas. The frequency of military training has increased since 2000,¹⁷⁰ albeit exercises such as Operation Narwhal in 2007 are transient surges representing no lasting military presence. Like the Air Force, this also leaves the Army with a small Arctic footprint.

Lastly, even if it were to venture there routinely with its surface and sub-surface combatants and Maritime Coastal Defence Vessels, the Navy retains a patrol capability only in ice-free waters.¹⁷¹ The Navy’s most continuous northern surveillance effort is

¹⁶⁷DND, *Arctic Capabilities Study*, p. 9.

¹⁶⁸The CF18 can be operated out of Inuvik, NWT; Alert, NWT; Iqaluit, Nunavut; and Goose Bay, Labrador. Though an FOL exists at Rankin Inlet in Nunavut, it has never been utilized.

¹⁶⁹Chris Wattie, “U.S. Sub May Have Toured Canadian Arctic Zone,” *National Post*, 19 December 2005, and LCdr Ivan Russell, JTFN HQ, email to author, 24 October 2007.

¹⁷⁰ P. Whitney Lackenbauer, “The Canadian Rangers: A Postmodern Militia That Works,” *Canadian Military Journal* 6/4 (Winter 2005-06), pp. 49-60.

¹⁷¹Though the Navy identifies a brash ice capability for its destroyers/frigates and a Lloyd’s Register Ice Class 3 capability for its replenishment/coastal defence vessels, the navy does not navigate through these waters. This renders effective naval presence

coordinated by the two Maritime Security Operations Centres (MSOC) that are building the capability to become “focal points for the collection, analysis, fusion and exchange of intelligence, surveillance and reconnaissance information in support of domestic marine security issues.”¹⁷² Although a positive initiative, the MSOCs still lack an essential continuous information source feed from Canada’s Arctic.¹⁷³ For example, vessel information from the maritime Automatic Information System is dependent on infrequent satellite coverage in northern latitudes and it can be turned off by the ship’s crew.

That the Navy can only operate in the very southern reaches of the Arctic environment and with only limited permanence is indicative of decades of underestimation of the Arctic’s regional importance to Canada. A 1970 Defence Research Analysis Establishment (DREA) memorandum articulated that “there is no obvious need for maritime forces in the arctic today for military purposes but this situation may alter in the future as new weapons systems develop or as the area’s resources assume strategic importance.”¹⁷⁴ Nearly four decades later, Canada has realized DREA’s “strategic importance.” Canada continues to remain partially Arctic-blind across the nation’s third coast, but it appears that (since release of the 2004 National Security Policy and the 2005 International Policy Statement and Defence Policy Statement) the federal government has appreciated the risks of remaining

in Canada’s Arctic regions limited to ice-free periods. Kyle D. Christensen, “The Navy in Canada’s Northern Archipelago,” in *Defence Requirements for Canada’s Arctic*, ed. Brian MacDonald (Ottawa: Conference of Defence Associations Institute, 2007), 82; and LCdr Lorne Hartell, MARS command-qualified officer, in discussion with the author, 3 March 2008.

¹⁷²Vice-Admiral Bruce MacLean, “What Canadian Military and Security Forces in the Future World? A Maritime Perspective,” <http://centreforforeignpolicystudies.dal.ca/pdf/msc2005/msc2005maclean.pdf>; accessed 30 March 2008, p. 3.

¹⁷³The MSOCs, situated in Victoria and Halifax, will bring together a plethora of inter-agency players such as Fisheries and Oceans Canada, Transport Canada, the Canadian Coast Guard, the RCMP, Canadian Border Services Agency, and elements of Public Safety and Emergency Preparedness Canada. *Ibid.*, p. 3.

¹⁷⁴Major R.K. MacDonald, *DRAE Memorandum M20, A Note on Canada’s Maritime Interests in the Arctic 1970-1990* (Ottawa: Defence Research Analysis Establishment, Directorate of Maritime Operational Research, 1970), p. ii.

ignorant of existing and emerging threats to its Arctic. In so doing, it has provided new guidance and direction for Canada's military.

Other than the recognition of threats and the emergence of potential threats to Canada's security and sovereignty, Canada's present-day Arctic focus is reflected in early work during the Symposium on Arctic Security Issues, held at CF Northern Area Headquarters (now Joint Task Force North) in early 1999. One outcome from this symposium was the recognized need for an interdepartmental working group to "better co-ordinate the efforts of the various federal departments/agencies involved in security in the North."¹⁷⁵ This led to the Arctic Security Inter-departmental Working Group (ASIWG) that stood up in end-1999.¹⁷⁶

The ASIWG has been instrumental in bringing together those elements of government with responsibilities for defence of Canada's North and creating a unified focus of their efforts; components of intra-governmental diplomacy exist for sure, but are nonetheless led by DND. ASIWG was the genesis for a comprehensive study of current governmental capabilities. Though the 2000 Arctic Capabilities Study (ACS) made numerous recommendations to enhance specific military capabilities, the one particular requirement that emerged from the study was the need for a long-term northern surveillance capability.¹⁷⁷ Many short- and medium-term ACS initiatives have moved ahead successfully,¹⁷⁸ but future CF capital acquisitions will have the most impact in the Arctic. Additionally, long-term ACS surveillance solutions will be crucial to a successful

¹⁷⁵DND, *Arctic Capabilities Study*, p. 2.

¹⁷⁶Federal departments represented on the ASIWG other than DND include Canada Customs and Revenue Agency, Canadian Coast Guard, Canadian Security and Intelligence Service, Citizenship and Immigration, Environment Canada, Foreign Affairs and International Trade, Indian Affairs and Northern Development, RCMP, and Transport Canada. *Ibid.*, p. 5.

¹⁷⁷*Ibid.*, pp. 12, 17.

¹⁷⁸DND, *Arctic Capabilities Study Sitrep* (Yellowknife: Canadian Forces Northern Area HQ, 2002), p. 1.

defence strategy in the Arctic. Without continual domain awareness, any response to security and sovereignty challenges will remain haphazard at best.

DEVELOPING CAPABILITY TO SUPPORT SECURITY AND SOVEREIGNTY

Canada's Air Force is increasing its capability at a rate not seen since the early 1950s.¹⁷⁹ Though still thin in total airframe numbers, the Air Force is positioning to operate in Canada's far northern reaches. The Aurora modernization programme will take the patrol aircraft fleet into the 2020s. With only 10 upgraded airframes, eight will be retired by 2015, and availability for multiple taskings will degrade, but its sensor package and communications suite will make it a more effective surveillance platform when tasked to the Arctic. On the other hand, when the upgraded Aurora is combined with the Hornet fighter modernization project, Arctic revisit rates could increase. Additionally, the introduction to service of five Globemaster transports and 17 modern Hercules transports will greatly improve strategic airlift into the Arctic and response to both national and regional emergencies. To facilitate this capability the Air Force is examining lengthening FOL runways by 3,000' to support Globemaster operations in addition to installing a de-icing capability to expand the operations envelope.¹⁸⁰ With the establishment of a deep water port at Nanisivik, consideration should also be given to upgrading the 6400' runway there to allow Globemaster operations to support operations east of Resolute. Lastly, the Sea King's replacement, the Cyclone, is planned to enter service in 2012 with a medium icing capability. While at present it

¹⁷⁹A detailed overview of the Royal Canadian Air Force's personnel training and fleet acquisitions during the late 1940's and 1950's is provided by DND. Department of National Defence, "Timeline: The Modern Era," http://www.airforce.forces.gc.ca/site/hist/modern_e.asp; accessed 18 April 2008.

¹⁸⁰Major General J.M. Duval, Commander 1 Canadian Air Division briefing to Canadian Forces College, 19 February 2008.

appears that an initial operating capability will be delayed until well beyond 2012, the Cyclone will be able to operate in much harsher environmental conditions than the Sea King is able to. Thus it would be prudent for naval planners to incorporate Cyclone operations into the AOPV design rather than opt for a cheaper less-capable organic helicopter capability like the Griffon.

The Land Force's central thrust in the Arctic resides in the Canadian Rangers. Their validity as the 'eyes and ears' of the North is not disputed; their ability to work in its harsh environment represents a wealth of knowledge which will surely be captured in the Arctic Training Centre to be built in Resolute.¹⁸¹ The Rangers, which will be expanded by 900 to a total of 5,000 personnel, is integral to an overall Arctic CF capability.¹⁸² Lastly, the Arctic training Center at Resolute, with the ability to house 100 personnel year-round, will advance pan-governmental operational expertise in the region by training Land Force personnel, other CF elements, and Other Governmental Departments (OGD).¹⁸³

Canada's maritime force should feature prominently in the Arctic's future considering the potential for the NWP to allow access through the heart of Canada's Arctic. In reference to the penetrable nature of maritime frontiers, Kearsely makes the case for a naval warfighting capability to protect those frontiers: "Warships...are ideally

¹⁸¹Ranger efficacy as the 'eyes and ears' of the North has been demonstrated in the past by, for example, the 1999 sighting of a submarine in Baffin Island's Cumberland Sound. Huebert, "Northern Interests and Canadian Foreign Policy," p. 10. Additionally, Ranger lore of a submarine sighting that was reported to Ottawa and amplified by the qualifier that "bullets don't bounce off a submarine," lends credence to the Ranger' presence in the Arctic. Colin Campbell, "Canada's Ragtag Arctic Airforces," *Maclean's*, 28 August 2006.

¹⁸²Office of the Prime Minister of Canada, "Backgrounder."

¹⁸³Military training in the Arctic is on the rise. In 2008 JTFN has scheduled three events: Exercise Nunavut, in the High Arctic, to conduct a reconnaissance of WWII-era airfields, conduct sovereignty operations, and to conduct a population verification; Operation Nunakput, in the western Arctic area, to monitor Beaufort Sea shipping and to conduct joint training with the RCMP; and Operation Nanook, in the eastern Arctic, to conduct a sovereignty patrol, coordination training with other governmental departments, and to respond to a simulated cruise ship grounding scenario. Commander JTFN, Brigadier General Christine Whitecross, discussion with the author, 7 March 2007, Iqaluit, Nunavut.

suited to take advantage of this penetrability...the fact is that naval force utilization will still be attractive because it operates in a far more flexible medium: the sea.”¹⁸⁴ However, the future Navy will not exploit the penetrable characteristic of the sea as well as it could. Steps to acquire a naval ice-breaking capacity are positive and in line with the ACS surveillance theme. However, the AOPV fleet will be able to operate only in medium first year or Polar Class 5 ice.¹⁸⁵ This means that Canada is acquiring an ice-breaking capability that will not allow “year-round access to locations such as Iqaluit, or to transit the Northwest Passage, [which] requires a vessel of not less than Polar Class 3.”¹⁸⁶ Looking beyond today’s fleet, neither the Joint Support Ship nor the Single Class Surface Combatant plans to have any greater ice capability over the replenishment ships and combatants that they will replace.¹⁸⁷

The creation of a deep water port in Nanisivik will provide a forward operating location capable of supporting naval operations, but even with a Polar Class 3 vessel the Navy will require additional replenishment support to transit to the central Arctic. In 2006, HMCS Montreal required a fuelling stop in Greenland enroute to Lancaster Sound.¹⁸⁸ Relying on a foreign state’s support during a national sovereignty exercise is not an enviable position. Montreal’s fuel detour demonstrated that only hands-on experience in the region is instructive, something that can only be gained by owning platforms able to operate there.

HMCS Fredericton’s deployment to the eastern Arctic in 2005 and again in 2007 provided a huge learning opportunity for the Navy but it did not address a core capability

¹⁸⁴Kearsley, *Maritime Power and the Twenty-First Century*, p. 15.

¹⁸⁵DND, “Proposed Ship Capabilities,” http://www.forces.gc.ca/admmat/dgmpd/aops/capability_e.asp; accessed 30 March 2008.

¹⁸⁶Christensen, “The Navy in Canada’s Northern Archipelago,” p. 85.

¹⁸⁷*Ibid.*, p. 87.

¹⁸⁸Blake Patterson, “CF Capability Key to Canada’s Arctic Sovereignty,” *Trident*, 10 March 2008, p. 3.

required for long-term presence: ice navigation. Rather than develop the Navy's ice capability in the AOPV, LCol. S.W. Moore argues that the CCG should retain any new icebreaker capability in order to affect sovereignty missions in the far north.¹⁸⁹ Resident expertise to conduct year-round icebreaker operations exists within the CCG, and (as with any complex new system) training and gaining the expertise to operate in ice-packed waters will take the Navy many years to develop. Even though it may seem appropriate to second Naval officers to the CCG to gain ice navigation experience, this know-how is an institutional attribute. Capturing this knowledge requires years of exposure during all phases of training and operations on a fleet-wide basis, not just with a few chosen individuals. Therefore, even with the limited ice ability that the AOPV brings, the Navy is unlikely to become adept in any form of ice operations, bolstering the requirement for other means to maintain a watchful eye over the North.

With the advances of air-independent propulsion, many submarine fleets have incorporated this technology into their operations. Canada has conducted research into both the technology and its application to the current submarine fleet, but decided that - desirable as it would be to provide some Arctic permanence - it is not practicable to retrofit Canada's subsurface fleet with it.¹⁹⁰ After HMCS Cornerbrook's deployment to the eastern Arctic last year, Huebert made the point that "sending a sub up to northern waters has significant [positive] ramifications for our ability to know what's going on."¹⁹¹ What Huebert referred to is not only the ability to sense and respond to incursions, but

¹⁸⁹LCol S.W. Moore, "Defending Canadian Arctic Sovereignty: An Examination of Prime Minister Harper's Arctic Initiatives" (Toronto: Canadian Forces College Command and Staff Course New Horizons Paper, 2007), p. 31.

¹⁹⁰Dalhousie University's Centre for Foreign Policy provides a succinct synopsis of past and present AIP efforts in Canada. Dalhousie University Centre for Foreign Policy, "Backgrounder: Victoria Class Submarines, Northern Operations & Air Independent Propulsion," http://naval.review.cfps.dal.ca/pdf/AIP_Backgrounder.pdf; accessed 30 March 2008.

¹⁹¹Bob Weber, "Canadian Submarine Heading to the Arctic," *The Gazette*, 28 June 2007.

also the network of water space management that Allied submarines require to operate: subsurface incursions into Canadian TTW would have to cease for fear that they could lead to a collision. Nevertheless, today's Navy - and the Navy of 2020, as articulated in *Leadmark*¹⁹² - remain without an 'eyes and ears' capability in the Arctic.

Probably the most prudent maritime measure DND undertook to enhance its maritime 'eyes and ears' is High Frequency Surface Wave Radar (HFSWR). The two Newfoundland operating stations are able to track even small vessels as far out as 170 nm¹⁹³ and the system, with 25 additional sites proposed for all three coasts, is specially suited to detect vessels not in compliance with automatic tracking systems. It was cancelled in January 2008, but in a rare turnaround – and reflecting how crucial HFSWR is to the 'Canada First' strategy - the government reinstated the system in March 2008. Once fully developed and installed, the 27 sites will be provide an unparalleled real-time recognized maritime surface picture across the roof of North America.

Defence Research and Development Canada (DRDC) and the CF Experimentation Centre (CFEC) are additional DND organizations committed to developing components of Canada's Arctic domain awareness. In more than half a century of research, DRDC and its predecessors have conducted scientific field operations in the Canadian Arctic. Not only have long-term arctic science operations demonstrated ownership and use of the land, but DRDC has also been the one military component consistently present in the Arctic. The 1971 White Paper on Defence identified the requirement for a "subsurface perimeter surveillance" located in Canada's

¹⁹²DND, *Leadmark: The Navy's Strategy for 2020*, (Ottawa: Chief of Maritime Staff, 2001).

¹⁹³Captain (N) Peter Avis, "Surveillance and Canadian Domestic Maritime Security," http://www.navy.forces.gc.ca/cms_strat/strat-issues_e.asp?category=25&id=287; accessed 30 March 2008, p. 6.

Arctic.¹⁹⁴ Accordingly, one notable DRDC success was its significant progress in under-ice detection and tracking of both surface and sub-surface vessels, demonstrated by the Theseus unmanned underwater vehicle and the Spinnaker underwater acoustic array projects, both of which were cancelled by 1999 due to budget restraints.¹⁹⁵ These projects were insightful. However, as DRDC demonstrated, underwater detection systems and their shore-based support structures were viable to operate and maintain in the far North. Underwater sensors are what Maj. Michel Ouellet describes as a “transit management” capability to monitor and control shipping in the NWP and to alert authorities about their presence.¹⁹⁶ Perhaps this capability will be resurrected (as with the HFSWR), but critics will still question the utility of an Arctic underwater surveillance system without a complementary enforcement capability.

DRDC has been involved with the Intra-departmental Northern Science and Technology Working Group tasked with developing a strategic roadmap to guide Arctic research and development.¹⁹⁷ The 2004 Arctic Littoral Intelligence, Surveillance, and Reconnaissance Experiment (ALIX), undertaken in conjunction with CFEC, demonstrated a C4ISR¹⁹⁸ capability in a domestic emergency scenario on southern Baffin Island using the Altair unmanned air vehicle (UAV).¹⁹⁹ Additionally ALIX highlighted a data fusion capability that facilitated dissemination of real-time information to the Halifax MSOC and the UAV remote operating center in Ottawa. This importance

¹⁹⁴DND, *1971 Defence White Paper*, p. 18.

¹⁹⁵Mark Tunnicliffe and Jon Thorleifson, *Exploration, Research, and Development – Enduring Themes in Canada’s Arctic* (Ottawa: DRDC, 2007), p. 7.

¹⁹⁶Major Michel Ouellet, “Sovereignty and Security of the Canadian Arctic: A Canadian Defence Policy Perspective” (Toronto: Canadian Forces College Command and Staff Course New Horizons Paper, 2005), p. 7.

¹⁹⁷Chief Force Development, JTF (North) and Chief of Maritime Staff are also partners in this working group.

¹⁹⁸C4ISR refers to command, control, communications, computers, intelligence, surveillance, and reconnaissance. ALIX was a follow-on experiment to the Pacific Littoral ISR Experiment (PLIX) in 2003.

¹⁹⁹DND, “Backgrounder: Atlantic Littoral ISR Experiment (ALIX),” http://www.dnd.ca/site/newsroom/view_news_e.asp?id=1432; accessed 30 March 2008.

is registered in the capability to include multiple headquarters in a military operation. Though a promising capability outlined within the Air Force's capability structure, UAV C2 systems are immature and require further development, particularly as they are effective only in Low Arctic regions.²⁰⁰

The ability to know what foreign vessels are operating in Canadian TTW is the first step in being able to act upon that information and exercise sovereignty. The government has stated that "the need for an Arctic undersea surveillance capability remains, given that effective surveillance is an important component of sovereignty."²⁰¹ Today Arctic surveillance research is moving ahead with apparently ever-increasing importance and urgency. The centrepiece of current DRDC study focuses on the 2007 Northern Watch Technology Demonstrator. The project is a \$9.6 million undertaking to capitalize on previous undersea detection knowledge and to "conduct field demonstrations of sensor performance, data communications and data fusion at the Barrow Strait chokepoint off Gascoyne inlet [sic]."²⁰² DRDC's Arctic-focused initiatives also seem to be imbued with lasting intent. The last Speech from the Throne indicated further commitment to occupy and research Canada's northern-most region. By participating in the Federal Northern Strategy's Arctic Research Station, DRDC will gain

²⁰⁰Due to the earth's curvature, geosynchronous satellites provide reliable coverage for UAV C2 in the Low Arctic only, up to 57° - 62° North. UAV C2 in the High Arctic requires either a polar satellite or a ground-based relay system, a capability Canada does not have. Continuous Arctic satellite coverage is currently only available via the commercially operated Iridium system which is outside of the Canadian Space Agency's control; this system has sufficient bandwidth for only UAV control and not sensor information download. The CF's Director of Space is researching a project to provide molniya satellite coverage for a comprehensive Arctic UAV surveillance system. The period of a Molniya satellite orbit is 12 hours, thus requiring two satellites to provide 24/7 coverage for UAV C2. Maj Pat MacNamara, former Director of Air Requirements 7 (UAV), discussion with the author, 1 April 2008; and Phil W. Somers, Tom J. Racey and John D. de Boer, "Tracking Molniya Satellites," http://www.rmc.ca/academic/csr/molniya/reports/index_e.html; accessed 1 April 2008.

²⁰¹"Government of Canada Response to the Report of the Standing Committee On Foreign Affairs and International Trade 'Canada and the Circumpolar World: Meeting the Challenges of Cooperation into the Twenty-First Century,'" quoted in Griffiths, "The Northwest Passage in Transit."

²⁰²Tunncliffe and Thorleifson, *Exploration, Research, and Development*, p. 9.

a permanent facility from which its research and development initiatives will be conducted.²⁰³

Other government departments (OGDs) also retain responsibility for enforcing Canadian laws in the Arctic. Ironically, their ability to affect legal sovereignty over the land is minimal as they lack the platforms, expertise, intelligence, or personnel to respond in the remote North. This reinforces the need for a robust CF presence.

With about 60 detachments and 400 members in the territories, the RCMP performs a constabulary role, enforcing all three levels of governmental rule of law. The RCMP recognizes its importance in the Arctic. Senior analyst Angus Smith asserted that “the RCMP is sovereignty in the Arctic,” and therefore it is seeking to increase staffing and visibility on the ground.²⁰⁴ One problem is that “the RCMP requires a clearer understanding of the criminal threats and risks in the North.”²⁰⁵ The CF has a larger intelligence system of Allied sources and a much broader domestic surveillance network into which it can tap. Even though the CF is only empowered to support governmental departments that retain domestic jurisdiction for traditional border security issues such as human trafficking, illegal drug trade, and the smuggling of goods and weapons, the military becomes the key enabler concerning security and sovereignty measures.

The Canadian Security Intelligence Service (CSIS), on the other hand, has no real interest in the far North. Incredibly, given the multi-departmental consideration of threats to Canada’s Arctic and the stand-up of ASIWG, “Arctic surveillance and

²⁰³Michaëlle Jean, “Strong Leadership. A Better Canada. The Speech from the Throne,” <http://www.sft-ddt.gc.ca/grfx/docs/sftddt-e.pdf>; accessed 30 March 2008, p. 4.

²⁰⁴Angus Smith, RCMP Officer in Charge, Alternative Analysis Intelligence Requirements and Strategic Integration National Security Criminal Investigations, in telephone conversation with the author, 20 December 2007.

²⁰⁵Constable Patricia Flood, RCMP Media Relations Officer, email to the author, 12 December 2007.

sovereignty is beyond the CSIS mandate.”²⁰⁶ Additionally, the establishment of CSIS’ Integrated Threat Assessment Center (ITAC) has no real Arctic focus. Despite its mandate to “produce comprehensive threat assessments, which are distributed within the intelligence community and to first-line responders,”²⁰⁷ and despite the fact that ITAC is well integrated into multiple layers of national and regional organizations similar to ASIWG, CSIS lacks current vision northward.

The Canadian Border Security Agency (CBSA), Canada Customs and Revenue Agency, and Ports Canada are largely responsive organizations involved primarily at the interface of entry points to Canada. These organizations do not have extensive surveillance networks beyond Canada’s borders and rely on information from other departments such as DND and the RCMP. With only Tuktoyaktuk, Inuvik, and Iqaluit as maritime points of entry, CBSA has very little footprint in Canada’s Arctic security scheme.²⁰⁸

Similarly, Transport Canada’s Arctic presence is limited. Although its’ FLIR-equipped Dash 7 aircraft are ably suited to conduct surveillance/sovereignty missions, only East and West Coast pollution patrols are routinely conducted. Though Transport intends to expand the operating envelope of the National Aerial Surveillance Program into the Arctic, this has not yet occurred.²⁰⁹

Though Environment Canada has some jurisdiction in the Arctic concerning the Environmental Protection Act, its resources in the region are also limited. Its Canadian

²⁰⁶Giovanni Cotroneo, CSIS Public Liaison and Outreach Program Spokesperson, telephone conversation with the author, 10 October 2007.

²⁰⁷CSIS, “Backgrounder 13: The Integrated Threat Assessment Centre,” <http://www.csis.gc.ca/en/newsroom/backgrounders/backgrounder13.asp>; accessed 30 March 2008.

²⁰⁸CBSA, “Directory of CBSA Offices,” <http://www.cbsa-asfc.gc.ca/contact/listing/offices/office521-e.html>; accessed 30 March 2008.

²⁰⁹EcoAction, “Health of the Oceans Initiative at Transport Canada,” <http://www.ecoaction.gc.ca/news-nouvelles/20071005-1-eng.cfm>; accessed 30 March 2008.

Ice Service uses satellite imagery from multiple external sources for maritime navigation purposes; however, this imagery is not suitable for surveillance and security measures. On the other hand, the Canadian Space Agency and the CF are working collaboratively on Project Polar Epsilon to supply military commanders with imagery from MacDonald Dettwiler's Radarsat II satellite, launched in December 2007.²¹⁰ Because of its sun-synchronous orbit, it will frequent Canada's polar regions every 101 minutes, providing near-real-time surveillance coverage sufficient to track surface vessels but without the ability to control an Arctic UAV patrol. Once Polar Epsilon is fully implemented by 2011, surface surveillance and cueing of military assets for interdiction as well as environmental monitoring will be greatly enhanced. The CF states that its three metre resolution will not provide a small surface vessel or subsurface monitoring capability, however.²¹¹ Other initiatives will be required to fill the breach.

The only federal department other than DND with significant capacity for security and sovereignty response in the Arctic is CCG/Department of Fisheries (DFO). CCG conducts Arctic operations during the June-November timeframe with its two heavy Arctic and four Arctic icebreakers. CCG icebreakers provide escort and routing services to US Sealift Command tankers re-supplying NORAD's NWS²¹² while also aiding regional civilian vessel traffic that has increased from 78 in 2005 to 132 in 2007.²¹³

The recent federal budget announcement of a \$720 million project to replace one of the existing heavy icebreakers is a positive step towards maintaining Canadian

²¹⁰MacDonald Dettwiler and Associates, "About Radarsat II," <http://www.radarsat2.info/about/mission.asp>; accessed 30 March 2008.

²¹¹DND, "Backgrounder: Polar Epsilon Project," http://www.mdn.ca/site/newsroom/view_news_e.asp?id=2546; accessed 30 March 2008.

²¹²Department of Fisheries and Oceans, "Icebreaking," http://www.ccg-gcc.gc.ca/cen-arc/ice-glace/index_e.htm; accessed 30 March 2008.

²¹³Bob Weber, "Budget's 'Anywhere, Anytime' Icebreaker Welcomed, If It Gets Built: Experts," http://ca.news.yahoo.com/s/capress/080227/national/fedbudget_sovereignty_icebreaker; accessed 30 March 2008.

presence in Arctic waters.²¹⁴ This means that it will only replace the CCGS St Laurent, a Polar Class 3 ship, in 2017, and will not expand upon current capability. It will not address Huebert's belief that we need a vessel that can get "anywhere in the Canadian Arctic at any time of year."²¹⁵ Only Polar Class 1 icebreakers have year-round, pan-Arctic reach.

An important extension of any maritime asset is an organic helicopter. The current CCG icebreakers have the ability to operate light helicopters, such as the BO-15 or Bell 212; without any surveillance sensors onboard, their range is limited only to visual horizons. In order to capitalize on the persistent characteristic that an icebreaker brings, the future one should be able to accommodate the CF's Cyclone for an enhanced ISR capability, especially since the Navy's presence in the Arctic will not expand.

In sum, several departments at the federal level maintain varying degrees of interest in Canada's Arctic. DND has shortcomings that OGDs can minimize, such as the lack of a naval presence that CCG augments with its icebreakers. A whole of government approach to the Arctic is thus warranted, but this short evaluation reveals that Canada's military is the only federal organization with a spectrum of capabilities across the land-sea-air-space environments that can ensure security and sovereignty of the North.

POTENTIAL MILITARY EFFORTS TO STRENGTHEN CANADIAN ARCTIC SECURITY AND SOVEREIGNTY

²¹⁴Department of Finance, *Budget 2008, Chapter 4: Leadership at Home and Abroad*, <http://www.budget.gc.ca/2008/plan/chap4a-eng.asp>; accessed 30 March 2008.

²¹⁵Weber, "Budget's 'Anywhere, Anytime' Icebreaker"

Canada's military currently has a capability base to ensure limited security and sovereignty of its Arctic. It also has numerous promising technologies in the development mill that could greatly enhance future security and sovereignty requirements if they develop into capital acquisitions. One underlying theme of this article is that surveillance is an essential component of understanding challenges to security and sovereignty so that an appropriate response can be crafted, a point also made by Franklyn Griffiths.²¹⁶ In this light, the following should be considered by DND to enhance responsiveness to these Arctic challenges:

- a. increase the AOPV statement of requirements beyond just a Polar Class 5 ice designation that limits operations to the near-ice environment;
- b. increase the CCG icebreaker replacement statement of requirements beyond a Polar Class 3 ice designation;
- c. ensure that both the CCG icebreaker replacement and the AOPV have the ability to operate the Cyclone;
- d. ice-strengthen designated vessels already in existing Navy inventory to allow exploitation of the penetrable characteristic of the Arctic Archipelago;
- e. ensure that the follow-on to the Victoria Class submarine incorporates AIP technology to permit under-ice operations;
- f. create an integrated air/surface/subsurface ISR network based upon the existing technologies of commercial off-the shelf UAVs, the capable HFSWR, and DRDC initiatives like the Northern Watch project;
- g. create a 'Combined Arctic Command' to coordinate JTFN and US Northern Command Arctic surveillance and response efforts with an efficient C2 structure that maximizes both nation's strengths in the region;
- h. establish a formal Canada-US operations agreement in which Canadian liaison and exchange personnel augment US Navy submarine patrols in the Arctic for both North American security and undersea charting (similar to Canadian-Danish cooperation) operations;
- i. formalize exchange duties with the CCG to allow Navy personnel to gain experience in Arctic navigation and ice-breaking operations; and

²¹⁶Griffiths, "The Northwest Passage in Transit," p. 3.

- j. with regard to addressing the dramatic effects that climate change will assuredly impose, create a body to map out both those Canada-specific security and sovereignty issues that will arise and their potential solutions so that Canada can adapt in advance.

CONCLUSION

Canada seeks balanced solutions to solving domestic and international problems using multiple branches of governance. With respect to the Arctic, the Prime Minister's 'use it or lose it' approach is more than just empty policy speak. Due to its inherent characteristics of experience, training, capacity, presence, resources, timeliness of response, and spectrum of capabilities across the land-sea-air-space elements, the CF is leading Canada's charge to address security and sovereignty issues, heeding Admiral Brock's "three-ocean strategy."

Canada's military is the one federal organization that has the capacity to affect a national response to any security or sovereignty challenge in Canada's far north. The irony is that, apart from response to confrontation by a foreign military, the CF is subordinate to national authorities that hold ultimate jurisdiction for upholding the rule of law and sovereignty, like the RCMP and CCG. The military is the main supporting actor that facilitates or enables other departments to exercise their authority in the Arctic; this is done by providing the intelligence, the planning, and the means for authorities to arrive on scene and exercise, perhaps by only one or two individuals, that national jurisdiction.

Though there are gaps in DND's ability to meet tomorrow's Arctic challenges, its total capability package is developing and demonstrates the government's firm commitment to implement a 'Canada-First' strategy towards national security and

sovereignty. Of all the capital projects that DND has in the works, Air Force projects appear to be more advanced over those of its sister services. Additionally, it owns platforms that are most responsive and near-all-weather operable when considering the notion of arctic surveillance and response. Though the Navy lacks the presence that the Army is trying to regain, it also has the potential to become a larger player in Arctic operations. As climate change advances, so too will the emphasis on maritime trade routes, requiring the Navy's presence to monitor. Given the long lead times to bring any major project to fruition, be it acquiring a new platform or retrofitting an existing one, the Navy must correctly anticipate the demand for its role in the future of Canada's Internal Waters.

Canada needs to prepare for future conflicts, not past ones. The challenge lies in accurately foreseeing future challenges and responding to them before they manifest into unwieldy situations that catch the nation unprepared. In this regard, Canadian public opinion and policy need to remain receptive to the notion that paradigms have changed: Canada's far North no longer represents the security buffer it once was. As a maritime nation with three penetrable coastlines and a vast Arctic Archipelago, Canada's future lies in ensuring the maritime commerce routes that intersect its territory remain open. The security and sovereignty of these routes must be ensured for the future.

The collective assembly of the individual threats presented in this article paints a picture of significant challenge. Though not all are immediate, the problem is sufficiently plan to meet their eventuality. Despite some limitations to current and future capabilities, Canada's military is preparing for the future. In answer to the question

“how far does Canada need to go to protect its sovereignty?” former Minister of National Defence Perrin Beatty quoted Vice-Admiral Charles Thomas: “You can have as much sovereignty as you’re willing to pay for.”²¹⁷ Today Canada has earmarked the funding for greater autonomy, prosperity, sovereignty, and security of its Arctic. Canada must now ensure that its historic on-again/off-again cycle of influence in the Arctic remains on today and tomorrow.

²¹⁷Keith Spicer, “Canada’s Arctic Claims,” *Ottawa Citizen*, 10 September 2007.