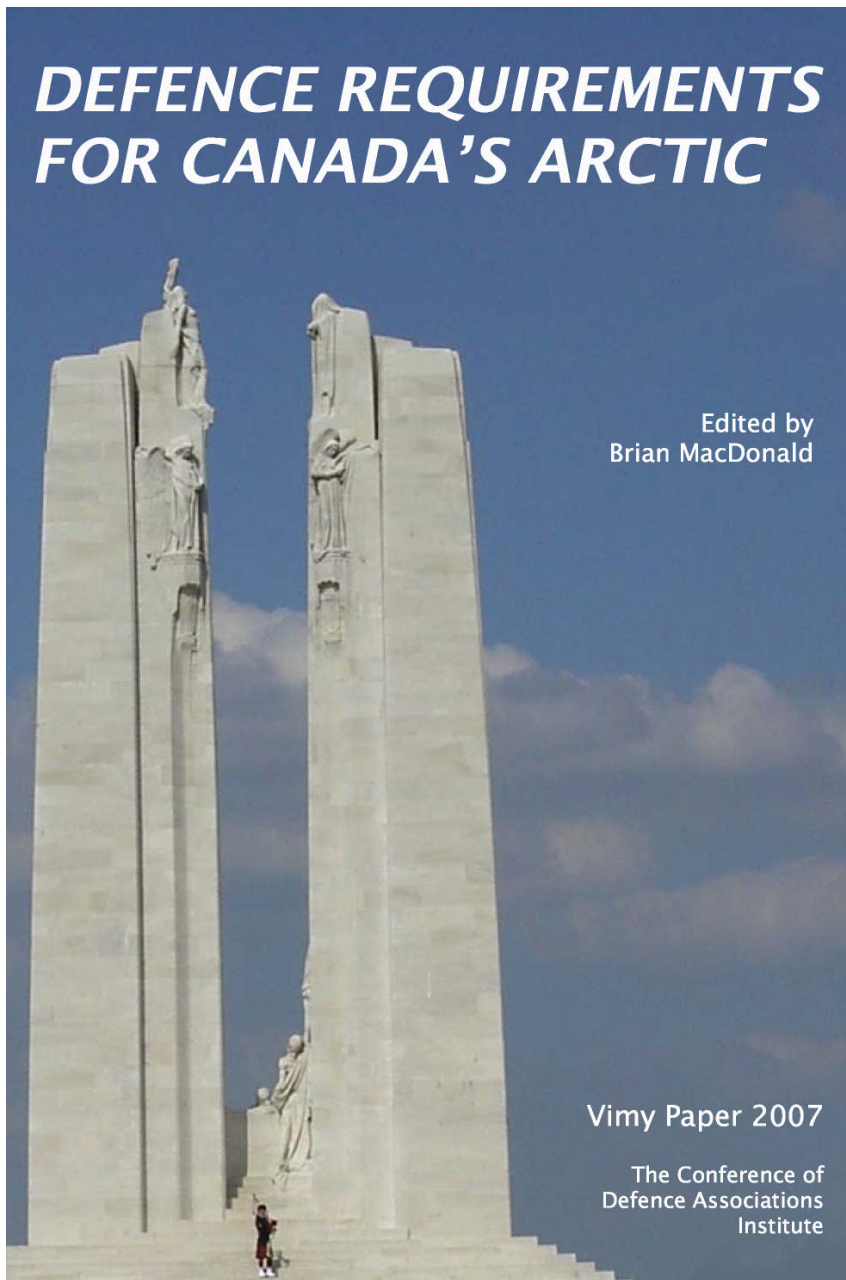


DEFENCE REQUIREMENTS FOR CANADA'S ARCTIC

Edited by
Brian MacDonald

Vimy Paper 2007

The Conference of
Defence Associations
Institute



***DEFENCE REQUIREMENTS
FOR CANADA'S ARCTIC***

***LES BESOINS
EN MATIÈRE DE DÉFENSE
DANS L'ARCTIQUE CANADIEN***

Edited by
Sous la direction de
Brian MacDonald

Vimy Paper 2007
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The Conference of Defence Associations Institute
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Foreword

Paul Manson

Why, you might ask, have we chosen the Canadian Arctic as the subject of this, the second *Vimy Paper*, at a time when the Government, the military, and Canadians in general are preoccupied with hotter items?

It's a good question. Having routinely treated their Arctic as being of marginal interest strategically, even during the Cold War when it was in fact a strategic frontier between East and West, 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.

The focus heretofore has been largely one of proclaiming and protecting our sovereignty, but even there we have felt a certain comfort in the knowledge that the challenges have generally come from friendly nations, with whom disputes can be worked out amicably or set aside indefinitely without any great risk to the nation.

So why, then, the concentrated treatment that you will find in this volume? The simple answer is that the prospect of change demands our attention from a national defence and security perspective.

The Cold War has come and gone, to be replaced by a new and very different form of international confrontation and conflict. To most North Americans, the new order (or disorder) was signalled by 9/11; it is now manifest daily in the constant turmoil of the Greater Middle East and, increasingly, lands beyond. For the first time since the Japanese invasion scare following Pearl Harbour, Canadians and Americans concern themselves with establishing a defensive perimeter that keeps potential enemies out. As access controls become more effective at the main points of entry further south, might terrorists be tempted to enter via the relatively undefended North?

Other less direct but potentially severe challenges face us in the form of climate change (usually seen as global warming), and the related prospect of increased economic activity in and around the Canadian Arctic; especially the extraction and transportation of natural resources. All of these changes, in turn, raise the spectre of future claims, declared or undeclared, against Canadian sovereign control of our waterways, zones of economic interest, and even our northern lands.

The Liberal Government of Paul Martin acknowledged the Arctic's new importance in its International Policy Statement of April, 2005. The Conservatives then went considerably further during the

ensuing election campaign by proposing a series of specific measures to expand the Canadian military presence in the North.

Given the lengthy time required to analyze future needs, formulate policy, pass legislation, and acquire new equipment for the Canadian Forces (a problem analyzed at some length in *Vimy Paper No. 1* last year), the Harper Government has to begin the process now as a matter of prudence, if it is to follow up in a timely and meaningful way.

For our part, we make no pretence of answering all the key questions; it is, after all, a thoroughly complex subject. It is our hope, however, that the information, ideas and conclusions presented in this monograph will be a catalyst for further study and action.

You will find, as you read through these pages, that Editor Brian MacDonald has done a remarkable job of bringing together pertinent works from distinguished experts that, together, offer an interesting and constructive view of the Arctic dimension of Canada's strategic future and the material needs of the Canadian Forces in helping to secure that future.

Avant-propos

Paul Manson

Vous vous demandez peut-être pourquoi nous avons choisi l'Arctique canadien comme sujet de ce document, le deuxième des *Cahiers Vimy*, à un moment où le gouvernement, les militaires et les Canadiennes et Canadiens en général se soucient de sujets plus brûlants ?

C'est une bonne question. Ayant toujours considéré l'Arctique comme étant d'intérêt négligeable au plan stratégique, même pendant la guerre froide lorsqu'il représentait en fait une frontière stratégique entre l'Est et l'Ouest, les Canadiens et les Canadiennes ont toujours eu la certitude que l'Arctique n'avait pas besoin de défense, en vertu de son climat inhospitalier, des énormes distances et d'un terrain qui découragerait à tout coup toute intention sérieuse d'invasion.

À date, nous nous sommes donc bornés à proclamer et à protéger notre souveraineté, mais même là, nous ne nous sentions pas vraiment menacés, sachant que les défis ont généralement été posés par des nations amies avec lesquelles tout différend peut être résolu à l'amiable ou encore mis de côté indéfiniment, sans poser de véritable risque à la nation. Alors pourquoi donc ce texte s'acharne-t-il sur ce sujet ? Pour y répondre simplement, certains changements prévus réclament notre attention au plan de la défense et de la sécurité nationale.

La guerre froide est chose du passé et a été remplacée par une forme nouvelle et bien différente de confrontations et de

conflits internationaux. Pour la plupart des Nord-américains, ce nouvel ordre (ou désordre) des choses a été marqué par le 11 septembre 2001; il se manifeste quotidiennement dans le tumulte constant du Moyen-Orient élargi et, de plus en plus, dans les pays au-delà de cette région. Pour la première fois depuis la crainte d'une invasion japonaise après l'attaque de Pearl Harbour, les Canadiens et les Américains se soucient d'établir un périmètre de défense qui bloque l'entrée aux ennemis potentiels. Maintenant que les contrôles d'accès deviennent plus efficaces aux principaux points d'entrée au sud, les terroristes seraient-ils tentés de pénétrer dans cette zone en passant par le Nord relativement sans défense ?

D'autres problèmes potentiellement plus graves se posent dans le domaine du changement climatique (habituellement perçu comme le réchauffement de la planète) et l'éventualité connexe d'une activité économique accrue dans l'Arctique canadien et ses environs, particulièrement pour ce qui est de l'extraction et du transport des ressources naturelles. Tous ces changements soulèvent à leur tour la possibilité de remises en question, déclarées ou non déclarées, du contrôle souverain du Canada sur nos voies navigables, nos zones d'intérêt économique et même nos terres du grand Nord.

Le gouvernement libéral de Paul Martin avait reconnu, dans son énoncé de politique internationale d'avril 2005, la nouvelle importance de l'Arctique. Les Conservateurs sont allés plus loin, pendant la campagne électorale qui suivit, en proposant une série de mesures visant à augmenter la présence militaire canadienne dans le Nord.

Vu le temps que prendraient l'analyse des besoins futurs, la formulation des politiques, l'adoption de mesures législatives et l'acquisition de nouveau matériel pour les Forces canadiennes (un problème analysé en détail dans le *Cahier Vimy n° 1* de l'an dernier), le gouvernement Harper devrait entamer immédiatement le processus par mesure de prudence s'il entend mettre à bien son projet d'une manière ponctuelle et significative.

Quant à nous, nous ne prétendons pas répondre à toutes les questions importantes, puisqu'il s'agit, après tout, d'un sujet extrêmement complexe. Toutefois, nous croyons que l'information, les idées et les conclusions présentées dans cette monographie serviront de catalyseur à une étude plus poussée, et encourageront les décideurs à passer aux actes.

En parcourant ces pages, vous constaterez que l'éditeur du texte, Brian MacDonald, a fait un travail remarquable en réunissant des documents pertinents de spécialistes distingués qui, tous ensemble, offrent un aperçu intéressant et constructif de l'importance qu'occupe l'Arctique dans l'avenir stratégique du Canada, et des besoins matériels essentiels aux Forces canadiennes dans l'accomplissement de leurs tâches relatives à cet avenir.

Introduction

Brian MacDonald

Defence planners, at the very best of times, face difficult challenges in making capital equipment investment decisions. In the first place, the decision making process is itself a lengthy one, driven in part by questions of the adequacy of capital funding, the necessity to balance competing claims of differing capabilities needs, legitimate military needs and the political realities of non-military objectives which are superimposed upon military procurement.

A second challenge, the impact of the technological cycle, is felt most sharply in the rapid escalation of sensor and computing capabilities and the need for “mid-life technological” refits at ever shortening periods in order to retain military viability. Then there are the evolving trends and often abrupt changes in the strategic environment, some of which may be predictable, though their ultimate shape unclear, and some which seem to suddenly appear without apparent warning except to a very few specialists who struggle to gain the attention of their decision-making masters.

Finally, there is the realization that equipments purchased now will have a service life of twenty to thirty years before their replacements arrive. Defence planners must therefore face the task of predicting and coping with fundamental change over a potential 40 year time frame (when acquisition cycle is added to service life). Since equipment decisions taken now limit the policy options of future governments for those 40 years, there is a critical need to “get things right.”

Canada, perhaps smugly believing that the international strategic environment would remain benign after the end of the 45 year Cold War, allowed a period of de facto structural disarmament to erode the capital base of its armed forces to the point that some analysts were predicting the “mass extinction” of the Canadian Forces. Now the process of rearmament simply adds to the challenge of coping with massive change in a very short period.

There is a similar difficulty in framing such a book as this—the task becomes one of deciding what important aspects to leave out, simply because of the shortage of space. Obviously, we would have liked to give more time to the assessment of the science lying behind the study of climate change—but in the end had simply to accept it as given and to explore the consequences and their effects upon the calculation of defence capabilities requirements for Canada’s Arctic.

Similarly, we would have liked to explore more fully the intricate set of relationships between the federal and territorial governments and their agencies, since so many of the potential response scenarios place the Defence Department in a supporting

role, either for traditional “assistance to the civil authority,” where the military is not required to use armed force, or for “aid to the civil power” when it must, as the agent of last resort to ensure the security of the state, exercise precisely those powers.

In the end we chose to begin with a series of chapters that provide an overview of the changing political and strategic environment and Canada’s responses to those changes.

Rob Huebert, of the University of Calgary, provides the historical overview of issues and organizational responses to them. A key “national” question is always that of the controversy surrounding our sovereign control of the waters of the Northwest Passage. We are indebted to Andrea Charron of the Royal Military College, and to James Kraska, the Oceans Policy Advisor to the United States Joint Chiefs of Staff, for their insights into the management of this contentious issue. We sometimes need reminding, too, that there are other players in the Arctic who share concerns similar to ours, and Tómas Brynjólfsson brings to us such an inside view from his perspective in the *althing*, or parliament, of Iceland.

Given the complexity of the relationships, we felt it appropriate to ask Gary Rice to propose a “reality check” process through the construction of a series of “what if” scenarios to see if the necessary capabilities to be defined by our “joint” and “service” authors would be able, in fact, to meet the demands of those scenarios.

With the stage set, we are able to turn to the insights of our four capabilities analysts: George Macdonald, former Vice-Chief of the Defence Staff and Deputy Commander of NORAD, Peter Gizewski and Andrew Godefroy of the Army Directorate of Land Concepts and Doctrine, and Kyle Christensen, of the Directorate of Maritime Strategy.

We believe that we have made a helpful contribution to meeting the rapidly growing interest in the security of the Canadian Arctic and the measures that need to be taken to ensure our sovereignty and control of Canada’s Northern frontier.

As the editor of this book it has been my pleasure to work with an outstanding group of authors, and I thank them for their patience and understanding as we have made the various mutual adjustments that are always part of a book making process.

I would also like to acknowledge the support of the Conference of Defence Associations Institute’s key staff and stakeholders, and especially the unwavering enthusiasm and encouragement of President Paul Manson, and Executive Director Alain Pellerin. Let me thank too, Richard Evraire, Chairman of the Conference of Defence Associations, who hosted so many of our editorial meetings, David Anido, whose enthusiasm for rounding up authors proved the old adage that “many hands make light work,”

Elizabeth Sneyd, our ever cheerful and unflappable Project Officer, and Peter Forsberg, our steadfast Public Affairs Officer.

Introduction

par Brian MacDonald

En tout temps, l'achat de matériel militaire est un défi de taille. En premier lieu, le processus décisionnel est très long puisqu'il requiert donner réponse à des questions de suffisance de fonds et de choix entre les besoins militaires légitimes et les objectifs non militaires qui se superposent aux acquisitions de ce matériel.

En second lieu, et pour des raisons de viabilité militaire, des refontes « technologiques de demi-vie » à intervalles sans cesse plus courts s'imposent. Puis, il faut tenir compte de l'évolution des tendances et des changements souvent abrupts du milieu stratégique; certains sont prévisibles, bien que leur forme finale soit incertaine, tandis que d'autres se manifestent sans pré-avis sauf à ces quelques spécialistes qui essaient, souvent de peine et de misère, à en attirer l'attention des décideurs.

Il est important de constater, en dernier lieu, que le matériel militaire fait partie de l'inventaire des Forces canadiennes pour une période allant de 20 à 30 années avant d'être remplacé. Si on ajoute la période d'acquisition du matériel militaire à sa période d'utilisation, force est de constater que dans leurs choix de matériel, les décideurs doivent prévoir la capacité de ce matériel à s'adapter, pendant une quarantaine d'années, à des changements fondamentaux technologiques et opérationnels.

Pensant, peut-être avec optimisme, que le milieu stratégique international resterait pacifique à l'issue de la guerre froide qui a duré 45 ans, le Canada a accepté un désarmement structurel de fait qui a érodé l'assise financière de ses forces armées, à tel point que certains analystes ont prédit la tombée en désuétude des Forces canadiennes. Actuellement, le processus de réarmement s'ajoute au problème qui consiste à absorber, à très court terme, une importante transformation technologique et organisationnelle.

Nous aurions préféré, dans ce livre, accorder plus de temps à l'évaluation scientifique qui sous-tend l'étude du changement climatique. Mais, et en raison d'un manque d'espace, nous avons choisi d'en accepter l'évaluation et d'examiner ses conséquences et ses effets sur les capacités militaires nécessaires à la défense de l'Arctique canadien.

Nous aurions aussi voulu explorer davantage l'ensemble des relations entre les administrations fédérales et territoriales, étant donné que plusieurs scénarios prévoient, pour le ministère de la Défense, un rôle de soutien, soit « d'assistance aux autorités civiles », où les militaires ne sont pas tenus d'utiliser une force

armée, soit dans un rôle « d'aide au pouvoir civil », où l'armée doit, en tant qu'agent de dernier recours, afin d'assurer la sécurité de l'État, et d'exercer ces pouvoirs.

Au bout du compte, nous avons choisi de présenter un aperçu du milieu politique et stratégique changeant, et de la réponse du Canada à ces changements. Rob Huebert, de l'Université de Calgary, nous offre donc l'aperçu historique des enjeux et des réponses organisationnelles face à ceux-ci.

Une question « nationale » clé se pose toujours; la souveraineté du Canada sur les eaux du passage du Nord-Ouest. Nous sommes redevables à Andrea Charron du Collège militaire royal, et à James Kraska, analyste de politique sur les océans auprès du Comité des Chefs d'état-major des États-Unis, pour leur point de vue sur la gestion de cette question litigieuse. Il ne faut pas oublier que le Canada n'est pas le seul pays à s'intéresser à l'arctique. Tómas Brynjólfsson nous communique un point de vue Islandais.

Vu la complexité des enjeux, nous avons demandé à Gary Rice de proposer une série de scénarios hypothétiques qui permettront à nos quatre analystes, George MacDonald, ancien vice-chef d'état-major de la Défense et commandant adjoint du NORAD, Peter Gizewsky et Andrew Godefroy, de la Direction des concepts stratégiques (Opérations terrestres), et Kyle Christensen, de la Direction de la stratégie maritime, d'étaler, chacun dans leur domaine d'expertise respectif, les capacités militaires nécessaires à la Marine, l'Aviation et l'Armée de terre, ainsi qu'aux éléments conjoints et de soutien, à la formulation d'une réponse adéquate aux exigences de ces scénarios.

En tant que directeur de la rédaction de cet ouvrage, j'ai eu le plaisir de collaborer avec un groupe exceptionnel d'auteurs. Je les remercie de leur patience et de leur compréhension pendant le processus d'adaptation mutuelle qui fait toujours partie de la création d'un ouvrage de la sorte. Je tiens aussi à remercier Paul Manson, Président de l'Institut de la Conférence des associations de la défense, ainsi que Alain Pellerin, son Directeur exécutif, pour leur appui, leur encouragement et leur enthousiasme indéfectible. Je voudrais également remercier Richard Evraire, président du conseil de la Conférence des associations de la défense, qui a animé tant de réunions de l'équipe rédactionnelle; David Anido, dont l'enthousiasme à réunir les auteurs a rendu la tâche tellement plus légère; Elizabeth Sneyd, notre agente de projet toujours enjouée et imperturbable; et Peter Forsberg, notre loyal agent des affaires publiques.

Chapter 1

The Rise and Fall (and Rise?) of Canadian Arctic Security

Rob Huebert

Abstract

Canada began to take the defence of its Arctic seriously in World War II when Japan invaded the Aleutian Island chain off Alaska. After the end of the War, the subsequent development of the Soviet threat meant that the Arctic remained an important strategic theatre. However, while willing to acknowledge the threat, successive Canadian governments preferred to allow the United States to provide the bulk of forces needed for its northern defence. When the Cold War ended, Canada eliminated almost all of its remaining national defence capabilities. But at the turn of the century, the downward spiral in Canadian northern defence capabilities began to be reversed, and there are now indications that Canada is moving to rebuild them. This chapter examines what is being done and why this is the case.

Resumé

Le Canada a commencé à prendre au sérieux la défense de son territoire dans l'Arctique pendant la Deuxième Guerre mondiale lorsque le Japon a envahi l'archipel des îles Aléoutiennes, au large de l'Alaska. À la fin de la guerre, la menace soviétique croissante a transformé l'Arctique en un théâtre d'opérations stratégiques important. Cependant, bien qu'elles aient été disposées à reconnaître cette menace, les administrations canadiennes successives ont préféré laisser aux États-Unis la tâche de fournir le gros des forces militaires nécessaires à la défense du nord. Au terme de la guerre froide, le Canada a choisi d'éliminer presque tout ce qui restait de ses capacités de défense nationale, mais depuis le début du siècle, il s'attarde à reconstituer ses capacités de défense presque inexistantes dans le nord. Le présent chapitre se penche sur les mesures qui ont été prises et les raisons sous-jacentes.

Introduction:¹

In the summer of 2002, Canadian Forces held their first joint exercise in the Canadian Arctic in over twenty years. Three years later, in August 2005, two Canadian warships entered Hudson Bay for the first time in over thirty years. The Canadian Forces are

¹ An earlier version of this chapter appeared as "The Renaissance in Canadian Arctic Security?!" in *Canadian Military Journal* vol.6 no.4 (Winter 2005-06).
<http://www.journal.dnd.ca/engraph/Vol6/no4/04-North1_e.asp>.

eagerly waiting for the launch of *RadarSat II*, scheduled for 2007, to give Canada, for the first time ever, the capability to know which surface vessels are in Canadian northern waters. To top this off, recent Canadian Governments have been very vocal in their acknowledgement of the need for better Arctic Security. Further fuelling this re-growth in Canadian Arctic security has been the interest generated by the national media in several stories involving Canadian Arctic sovereignty and security, such as the dispute with Denmark over Hans Island. All of this has suggested that Canada is “rediscovering” the need to improve its ability to defend the north.

The security of the Canadian North has always been a problem for Canadian policy makers and the Canadian Forces. The challenges of operating over the vast distances of the North, together with the complex nature of the security threats in the North in the face of the extreme weather conditions, have combined to create security requirements that often appear insurmountable. It often appears that Canadian political leaders and defence planners have preferred to ignore these challenges and to hope that nothing would happen. When decisions were made, they were usually made to respond to the specific actions of one of Canada’s northern neighbours, such as the United States or the USSR/Russia. Furthermore, even when the Government of Canada has decided to act, it has proven unwilling to commit the resources to meet the requirements of those decisions. However, despite its weak past record, there are signs that the Canadian Government and the Canadian Forces are beginning to take the security of the Arctic seriously. In order to understand what the Canadian Government is now doing, four questions need to be answered.

- 1) What has been Canadian Arctic Security?
- 2) How well has Canada met its needs to protect its Arctic region?
- 3) Is Canada improving how it provides for its Arctic security?
- 4) If this is so, why is this the case, and is this effort likely to be sustained?

Historical Development:

The full history of Canadian Arctic security remains undiscovered. Little is known about it and about the indigenous populations prior to the arrival of the Europeans. There are some suggestions that there may have been some low level conflict between the Inuit and Dene, but little has been yet documented. There also are limited observations of a conflict between the Inuit

and early European explorers, possibly involving Martin Frobisher and Henry Hudson.¹

The modern record of Canadian Arctic security began with the Japanese attack on the American naval base at Pearl Harbour. Following their failure, there, to catch and sink the American aircraft carriers, the Japanese tried to engage the American fleet off Midway Island in the early summer of 1942. In order to confuse the Americans, the Japanese also launched a diversionary attack on the Aleutian Islands of Attu, Agattu, and Kiska. They held these islands until they were defeated by a joint American-Canadian invasion in the summer of 1943.² Both the American and Canadian Government feared that the Japanese might use the islands as a staging point for further advances into North America. The decision was made that there was a need to build a road that would connect the existing North American road system into Alaska. This would allow for the transfer of personnel, ammunition, and other goods to defend against any further Japanese advance. The Highway began at Dawson Creek, BC and proceeded for 1422 kilometres/2288 miles to Fairbanks Alaska.³ Started in March 1942, it was completed eight months latter.⁴

When the Second World War ended, the Soviet threat to the Canadian north soon replaced that of the Japanese. As the Soviets acquired nuclear weapons (first, long range bombers, and later, ballistic missiles), the Canadian Arctic became one of the Cold War's main theatres of operation. While there was little fear of a Soviet ground invasion, the polar route became the direct avenue of attack on North American cities by the Soviet bomber and nuclear missile forces. In order to defend against either a bomber attack, or deter a missile attack, the Governments of Canada and the United States entered into a number of agreements that provided for the surveillance and protection of North America's aerospace. These included the construction of the Distant Early Warning (DEW) line of radar sites, and the establishment of the North American Aerospace Defence Command (NORAD). The DEW Line was placed across the entire northernmost land boundary of North America, from western Alaska, across northern Canada, to Greenland. It was modernized in Canada in 1985, and is now known as the North Warning System. In May, 1958, Canada and the United States agreed to the establishment of NORAD. This created the joint command that

¹ James Delgado, *Across the Top of the World: The Quest for the Northwest Passage* (New York: Checkmark Books, 1999), 19, 40.

² *Operation Sandcrab* took back Attu. This was a costly battle and on the allied side was fought only by American forces. The battle to take back Kiska (*Operation Cottage*) was a joint US-Canadian operations comprising of approximately 30,000 American ground troops and 5,500 Canadians. However, unknown to the allies, the Japanese evacuated their troops three weeks before the invasion.

³ Bell's Travel Guide, "The Alaska Highway," 2001
[http://www.bellsalaska.com/alaska_highway.html].

⁴ The Milepost, "History of Alaska Highway," 1998,
[<http://www.themilepost.com/history.html>]

provides for the surveillance and joint control of North American airspace. It remains in force as one of the key security arrangements between the two states.

In the case of both the DEW line and NORAD, Canada and the United States act as political equals. However, it was the United States that provided the bulk of the financing and technology required for their construction and maintenance. Nevertheless, the consensus is that both served Canadian northern security requirements well. There were, inevitably, some minor disputes in their development, but no significant difficulties arose regarding their impacts on Canadian-American security requirements.¹ NATO's ability to maintain a credible deterrent against the Warsaw Pact is attributable, in part, to the success of both the DEW Line and NORAD.

However, when we examine actions taken by Canada to provide for its northern security, it becomes apparent that the Canadian Government has historically preferred to minimize its presence there. The largest Canadian force in this region is a volunteer militia force called the Rangers whose purpose is to protect Canadian Arctic Sovereignty through their presence, and to provide a means of surveillance. These units are primarily made up of Northern Canadian aboriginal personnel who bring with them their outstanding skills in navigating and surviving in the north. These forces are not heavily armed, however, and have not been employed in patrols very far from their communities until very recently. The permanent deployment of members of the Regular Force in the North has been small and, from the 1970s onward, did not normally exceed over 500 personnel. This included both the electronic listening post in Alert and the Northern Area Command headquarters in Yellowknife.² The Canadian Forces did engage in large-scale northern exercises throughout the 1960s and 1970s, but these declined in importance and size towards the end of the 1980s.

Likewise, the roles of both Air Command and Maritime Command decreased as the Cold War progressed into the 1960s and 1970s. The Navy had an icebreaker in 1954. However, it quickly made the decision to transfer it to the Coast Guard. The Navy then was reduced to sending an occasional vessel into the Arctic during the short open water period in the summer. These deployments stopped in 1989. When the USSR developed its nuclear powered submarine force and began to deploy it into Arctic waters, there was no effort by the Canadian Government to meet this threat. Periodically the Government toyed with the idea of purchasing nuclear powered submarines. In 1965, the possibility was raised of

¹ For the story on the development of early Canadian sovereignty and security policy see Shelagh Grant *Sovereignty or Security: Government Policy in the Canadian North 1936-1950* (UBC Press, Vancouver: 1988) 1-385.

² For a history of Alert see David Gray, *Alert: Beyond the Inuit Lands: The Story of Canadian Forces Station Alert* (Nepean: Borealis Press, 2000) 1-97.

buying a small number of American *Skipjack* submarines, but the idea was soon dropped.¹ The most serious consideration was made in the middle 1980s when the Government stated its intention, in its 1987 White Paper, to buy/build up to 12 nuclear-powered submarines.² This would have given the Navy the ability to go anywhere in Canadian Arctic waters. This could have then deterred Soviet Submarines from entering Canadian Arctic waters. Canadian nuclear powered submarines would have also forced allied navies to establish an underwater management scheme when operating in Canadian waters to avoid collision. Thus, Canada would have gained an excellent picture of all submarine activity in its Arctic waters. However, because of the end of the Cold War and escalating costs, the programme was abandoned just as a decision was about to be made as to what design would be selected.

The Air Force's ability to operate in the north has also been continually cut back throughout the 1970s and 1980s. 440 Squadron provides the only permanently based air assets. It is composed of four Twin Otters. These aircraft were built in the 1950s and are only now being replaced. There are also four forward operating locations (FOL) for Canadian and NORAD (i.e. American) fighters at Inuvik, Iqaluit, Yellowknife, and Rankin Inlet, but they are seldom used. With the exception of the Twin Otters, there are no Search and Rescue aircraft or helicopters permanently stationed in the north. The sovereignty overflights of the Canadian north by the long range aircraft (first the Argus and then the Aurora) reached a high of 22 flights per year in 1990, but were then drastically decreased, so that by 1995 there were only one or two flights a year.³

It is obvious that the ability of the Canadian Forces to respond to security threats in the North was never strong. At its zenith, the Canadian Forces cooperated with the United States to respond first to the Japanese and then to the Soviet threat. However, there was little effort to develop an ability to act on its own. There are several reasons for this. First, the costs associated with any independent effort have always been formidable. In the 1950s Canada might have had the resources to build up its northern military capabilities, but it would have come at a cost to its other defence capabilities. Since the Americans were willing to pay for the vast majority of the costs, there seemed little reason to spend more Canadian funds. Second, the threat posed by the Japanese, and then the Soviets, to the north were always overshadowed by other elements of the security threat at the time. Thus, the war in Europe

¹ Marc Milner, *Canada's Navy: the First Century* (Toronto: University of Toronto Press, 1999), 230.

² Department of National Defence, *Challenges and Commitment: A Defence Policy for Canada* (Ottawa: Supply and Services, 1987).

³ Rob Huebert, "Steel, Ice and Decision-Making: The Voyage of the *Polar Sea* and its aftermath: The Making of Canadian Northern Foreign Policy," unpublished Ph.D. thesis (1993) 366.

completely dominated the focus of Canadian decision-makers as the Japanese moved into Alaska. The assessment (which was correct) was that the German military threat was the most dangerous threat to Canada. Likewise, in the 1950s and 1960s, the action of the Soviets in Europe and Asia tended to divert attention from the growing Soviet aerospace and maritime threats to the Canadian Arctic. Third, the threat perception of the time was shared by the United States. With their much larger military capabilities, they were in a better position to provide the necessary resources to ensure that North America's northern security needs were met. Thus, Canada was willing to entrust North American undersea Arctic security entirely to the USN. Fourth, once the Alaska Highway, DEW line, and NORAD were built and/or created, Canadian decision-makers tended to believe that little more needed to be done. Thus, Canadian decision-makers were able to focus on other needs, thereby tending to forget the Arctic.

The End of the Cold War

The end of the Cold War accelerated the process of the de-securitisation of the Canadian north. Almost all ongoing activities were either stopped or substantially reduced. With the end of the Cold War, the view developed that the danger to the north was now over and nothing more needed to be done.

The Navy ceased its *NORPLOYs* in 1989. The Navy had been sending one to three of its vessels into the eastern Arctic at least since 1971. Initially Canadian destroyers and replenishment vessels were sent, but by 1986 only smaller vessels (*Cormorant* and *Quest*) were being sent. The Canadian Forces also had the opportunity to purchase underwater listening devices from the United States for use in the Arctic, and consideration was given to buying three units to allow for a complete coverage of the choke points leading into the Canadian Arctic archipelago. While a Memorandum of Understanding was reached to allow Canada access to this very advanced technology, the Canadian government ultimately decided that the expected cost of \$100 million was too expensive.

The Air Force also cut back its northern commitments. Throughout the 1990s, 440 Squadron continued to use its aging Twin Otters; the CF-140 Aurora and the three CF-140A Arcturus had their northern sovereignty overflights (*NORPATs*) reduced from a high of 22 in 1990 to one in 1995, and to seldom more than one or two flights a year after 1995. Likewise, Canadian CF-18s were seldom deployed to the four Forward Operating Locations.

In the mid-1980s, a modernized DEW line became the North Warning System. This included an updating of some of the radar systems. It also included a large-scale reduction of personnel manning the system, following the automating of many of the smaller sites. Into the 1990s, however, a lack of attention to system maintenance was clearly indicated when the building containing the

radar at one of the automated sites burned down and was never replaced. The Canadian post at Alert also was modernized, allowing for a decrease in personnel from over 200 to about 75.¹

The one element of Arctic security that was increased in the immediate aftermath of the Cold War was the Rangers. The overall number of Ranger patrols was increased from 25 in the 1980s to 58 by 2000 (each patrol varies in size but the average is about 10-15 personnel). However, funding limitations allowed for only 30 of the 58 units to actually go out on a single sovereignty patrol in 2000.

It is clear that the Arctic simply ceased being an area of concern for Canadian security in the 1990s. Indeed, when the Government did give any consideration to the role of the Canadian north in the emerging new international system, it was in the context of new multi-lateral institutions. The most important of these was the Arctic Council. While it has done important work in the determination of environmental and social threats facing the Arctic, it's founding document specifically forbids it from addressing security related issues. This clause was placed in at the insistence of American officials who still considered their Arctic security to be of high priority, and who did not want an international organization limiting their freedom of action.²

The 1990s were a time of substantial cuts for the Canadian Forces. Both personnel and budgets were substantially reduced as a result of the end of the Cold War. This required the Canadian Forces to make hard decisions in favour of their core priorities. It became clear that Arctic security was not a high priority. However as the 2000s began, a renewed interest in Arctic security was noted amongst a small number of Canadian forces personnel.

The Beginning of A Canadian Arctic Security Renaissance?

It was not until the end of the 1990s that the Canadian Government and the Canadian Forces began to reconsider their neglect of Canada's Arctic security. The new policy framework addressing the needs of Canada originated with a relatively small number of officials who became alarmed by Canadian inaction. To a large degree, this was the result of initiatives taken within the Canadian Government, particularly by members of the Canadian Forces. Much of the initial recasting of Canadian Arctic security commenced at the Arctic Security Working Group (ASWG).

¹ Alex Urosevic, "High Alert From atop the world: Canada's Cold Warrior spies now fight terror at 82.30 north latitude" *Toronto Sun* (November 14, 2004).

² Rob Huebert "New Directions in Circumpolar Cooperation: Canada, The Arctic Environmental Protection Strategy, the Arctic Council and Canada," *Canadian Foreign Policy* vol5, no2 (1998).

The Arctic Security Working Group (ASWG).¹

The Arctic Security Working Group (ASWG) (originally known as the Arctic Security Intergovernmental Working Group - ASIWG) has become one of the most important instruments for the Canadian government to examine and coordinate Canadian Arctic security policy. Created in the spring of 1999, it has served as a bi-annual forum in which Canadian federal and territorial government officials meet to discuss and coordinate activities related to Canadian Arctic security. It is a non-classified meeting that brings together academics and members of various northern aboriginal groups in a two-day meeting that is held on a rotating basis between the three territorial governments. It has provided a forum where each department can educate the others about security issues they have faced. For this reason, it has also served as an important forum for the coordination of policy and planning activities.

The ASWG was created on the initiative of Colonel Pierre Leblanc who was serving as commander of Canadian Forces Northern Area (CFNA) (now renamed Joint Task Force North). Issues covered by the ASWG have included problems associated with organized crime and the diamond industry, the security of oil and gas pipelines, security issues associated with a receding ice cover of the Arctic waters, and the spread of pandemic diseases.

These meetings have had three major impacts on the renaissance of Canadian Arctic security policy. First, they have provided a means of developing relationships among members. Many of the officials were unaware of the activities of their colleagues before meeting them through the ASWG. Secondly, the meetings provided a means of improving coordination between these same officials. CFNA has used the ASWG to coordinate exercises with other departments. When DND re-introduced joint northern exercises (*Narwhal*), it was able to include the RCMP, the Coast Guard, and the Space Agency in them. While such coordination may have occurred in the absence of the ASWG, it was at the regular meetings that the invitation for the other departments to join was made. The ASWG model of interdepartmental cooperation at multiple levels of government pre-dated the current efforts of the Canadian Government to coordinate its Arctic security policy. The events of 9/11 caused a major re-thinking of how North American governments provided for the security of their citizens. One of the major “new” initiatives has been the creation of numerous new interdepartmental security working groups. However, since it was created in the fall of 1999, the ASIWG preceded them all. It is not surprising to note that many of the officials involved with the ASWG in its early days now find themselves playing

¹ Until November 2006 this body was known as the Arctic Security Intergovernmental Working Group. However, in recognition of its increasingly complex membership, the decision was made at its November 2006 meeting to drop the word “intergovernmental” from its title.

important roles on these new security bodies. The territorial governments themselves have used the ASWG as a means of coordinating their own security and sovereignty policies. Territorial officials attending the ASWG soon became aware of the need to create their own policy. They then worked together to develop their own joint territorial policy paper on Canadian Arctic sovereignty and security.¹

The third benefit of the meetings is that they have provided an open forum for the education of its members. Among the points of business at the meetings are presentations from experts from academia, business, foreign countries, NGOs, and other government departments on new and emerging threats and security challenges in the North. In this manner, all members have an opportunity to discuss and debate the issues as they are put forward. The minutes of the meetings make it clear that the attendees at these meetings are becoming increasingly sophisticated about the threats posed by climate change, the resource industry and so forth.

Beyond its direct benefits, the ASWG has also given the commanders of CFNA the forum from which to advance to the senior leadership of DND the case for the need to improve Canadian Arctic security. They all have pressed their superiors on this case and have achieved several important initiatives. The first was the *Arctic Capabilities Study* (ACS),² and the second was the re-commencement of joint CF forces exercises in the North.

The Arctic Capabilities Study (ACS)

The aim of the Arctic Capabilities Study (ACS) was: “to provide information, analysis and recommendations with regard to the need for and the feasibility of an increased CF presence in and surveillance of the Arctic region.”³ It was undertaken on the assumption that the strategic situation in the Arctic was changing.⁴ The report was divided into four sections. The first provided a review of DND Arctic policy; part 2 reviewed the activities of other departments regarding Arctic security; part 3 reviewed DND activities in the Arctic; and part 4 examined options for increasing DND/CF capabilities in the Arctic.

Part 1 showed that there was limited mention of the Canadian North in the main policy documents.⁵ Part 3 of the ACS - the review of DND actions and capabilities in the North- found that,

¹ Government of Yukon, Northwest Territories and Nunavut, *Developing a New Framework for Sovereignty and Security in the North: A Discussion Paper prepared by the Governments of Yukon, Northwest Territories and Nunavut* (April 2005), [http://www.gov.nt.ca/research/publications/pdfs/sovereignty_and_security_in_the_north.pdf].

² Department of National Defence, *Arctic Capabilities Study* 1948-3-CC4C (DGSP) (June 2000).

³ *Ibid.*, 3.

⁴ *Ibid.*, 2.

⁵ *Ibid.*, 3.

"CF activities in the North have decreased over the years and our ability to monitor activity and to respond in an appropriate manner remains limited. This shortcoming is likely to become more significant as activity in the Arctic increases."¹ Thus the ACS acknowledged the weakened state of the Department of National Defence to provide for Canadian Arctic security.

The report then made a series of short/medium and long term recommendations that called for improved Canadian Forces capabilities in the North.² In total, the report provided an excellent summary of Canadian efforts to provide for Arctic security up to 2000. It found that Canadian efforts were limited. However, it also found that while there were signs of developing threats, they currently remained vague.

While the report called for improved exercising of Canadian Land Forces and Air Forces in the North, the commanders of CFNA have actually been successful in initiating a new series of large-scale joint exercises involving the Land, Maritime, and Air Forces along with the Rangers titled *Operation Narwhal*. There have been three such exercises, in 2002, 2004, and 2006. There has also been a fourth exercise, called *Hudson Sentinel*, centred on the Canadian Forces return to Hudson Bay.

Resumptions of Northern Operations/Exercises:³ Operation Narwhal and Hudson Sentinel

In August 2002, *Narwhal 1* focussed on the deployment of two Canadian Maritime Coastal Defence Vessels to the Eastern Arctic to exercise with land and air units of the Canadian Forces. This was the first time that the Navy had deployed a ship in the North since 1989, and the first time such a large joint exercise was held in the north since the end of the 1970s. Two years later, in August 2004, an even larger exercise was held in the Pangnirtung region. This time, a Canadian frigate, HMCS *Montreal*, was utilized along with land (including Rangers) and air elements. It was the first time since the 1982 deployment of HMCS *Saguenay* that a Canadian destroyer or frigate sailed into Canadian Arctic waters. The Canadian Coast Guard and the RCMP also participated in the exercise. In 2006 *Narwhal III* was held in the area north of Baffin Island.

In the summer of 2005, two Canadian Maritime Coastal Defence Vessels, HMCS *Glace Bay* and *Shawinigan*, circumnavigated Hudson Bay in an operation entitled *Hudson Sentinel*.⁴ The last time that any Canadian warship had been in these waters was 1975,

¹ *Ibid.*, 11.

² This was done, but the report remains classified.

³ The Canadian Forces normally draws a distinction between exercises and operations. However, in the case of the north any exercise is deemed to be so difficult, owing to the remoteness and climate conditions, that the decision was made to blur the distinction. Thus the first exercise was labelled *Operation Narwhal*.

⁴ Leah Jansen, "Canadian Naval Warships make Historic Churchill Visit," *Winnipeg Free Press* August 18, 2005 p.A5.

when HMCS *Protecteur* entered these waters. At the same time that the MCDV vessels were in Hudson Bay, the frigate HMCS *Fredericton* was engaged in a northern fishery patrol off the east coast of Baffin Island. There has been a renewed effort on the part of the Canadian Forces to re-acquire the skills necessary to operate in the North. However, as significant as these new efforts are, they are occurring only in the most benign environmental conditions. There has yet been no effort to conduct large-scale exercises in the winter months, with the exception of several expanded Ranger patrols. The Forces are re-discovering that operating in the Canadian North is just as challenging (and perhaps even more so) as deployments to regions such as Afghanistan or East Timor.

New Equipment

Following the release of the Arctic Capability Study, some steps have been taken to improve the quality and quantity of new equipment for use in the north. *Radarsat II* is a Canadian designed and built satellite that uses radar for the purpose of earth observation. Its Synthetic Aperture Radar (SAR) allows it to “see” through cloud and darkness, making it an ideal technology for use over the Arctic.¹ Once launched, it will be used to monitor surface vessels in Arctic waters. The utilization of *Radarsat II* for this specific mean is called *Project Epsilon* (the satellite will also perform other duties). This will be the first time that Canada will be able to maintain vessel surveillance of its Arctic waters, twenty-four hours a day/seven days a week, in almost real time terms.²

Another area where there is real intent to improve Canadian northern capabilities is in the specifications for new Maritime Forces ship construction. Both the proposed Joint Support Ships (to replace the current Auxiliary Oil and Replenishment (AOR) Vessels), and the replacements for the Destroyers and Frigates, are being designed with a capability to operate in limited ice conditions. While this will not mean that these ships can be considered to be ice-breakers, it will give the Canadian Navy the capacity to proceed into Arctic waters earlier and later in the season than is now the case. But a note of caution needs to be injected, since the final decision on the design of either class has not been finalized, and so, it is not confirmed that they will be given this limited ice capability.

Efforts are now being made to reach a decision on the type of aircraft to replace the Twin Otters. Likewise, the modernization of the CF-140s is continuing, but the three CF-140As are being removed from service. So, while the individual remaining long-range

¹ Rob Huebert, “Canadian Foreign Policy and Commercial Satellite Imagery,” in *The Need to Know: The Use of Satellite Imagery and Canadian Security Needs*, edited by Rob Huebert and Jim Keeley. (London: Ashgate Publishers, 2004) 193-206.

² There will be a delay in the download of the imagery, but depending on the urgency for the specific imagery, this can be very short, possibly less than an hour from when the imagery was taken by the satellite.

aircraft will be more capable, there will be fewer of them, suggesting that it will be hard for the Government to actually increase the number of sovereignty overflights that now occur.

While there are optimistic notes within DND, other key departments are not doing as well. Most notable is the continued inability of the Coast Guard to have its ice-breaking fleet re-capitalized. It has one heavy ice-breaker: *Louis St. Laurent* - commissioned in 1969, and five medium ice-breakers: *Pierre Radisson* (1978), *Sir John Franklin/Amundsen* (1979), *Des Groseillers* (1982), *Henry Larsen* (1987), and *Terry Fox* (1983).¹ Thus, almost all range in age from 36 years to 22 (with the exception of the 17 year old *Larsen*). While the Coast Guard has been attempting to gain Cabinet approval to *begin* examining a new shipbuilding programme, there are no indications that any decision will be made soon. It will be difficult to believe the Government is serious about northern security until it gets really serious about tackling this problem.

Commitment of the Canadian Government to Arctic Security

The clearest indication that the senior political leaders of Canada have come to accept the need for a re-examination of Canadian Arctic Security can be found in recent statements and policy papers. Both the Martin Liberal Government and the Harper Conservative Government have issued strong statements in support of improving Canadian Arctic Sovereignty and security. Martin's support was stated in the Canadian *International Policy Statement*. Released in the Spring of 2005, this document brought together Canadian foreign, defence, international aid, and international trade policies into one package. In the overview document, and the defence and diplomacy documents, the government accepted that it had neglected Canadian Arctic security, and now needed to act because of emerging changes.² This theme was brought out even more clearly in the Diplomacy and Defence documents where the need for Arctic security figures prominently in the sections on protecting North America. The Defence IPS states, "the demands of sovereignty and security for the Government could become even more pressing as activity in the North continues to rise."³

The Defence Paper makes it clear that there is a need to move beyond simply words, and lists specific improvements that are to be carried out by Canada's maritime, air, and land forces. The Maritime forces are to "enhance their surveillance of and presence in Canadian areas of maritime jurisdiction, including the near-ice and

¹Charles Maginley and Bernard Colin, *The Ships of Canada's Marine Services* (St. Catharines, Vanwell Publishing, 2001) 152-158.

² Government of Canada, *Canada's International Policy Statement: A Role of Pride and Influence in the World Overview* (Ottawa: 2005) 7.

³ Department of National Defence, *Canada's International Policy Statement: A Role of Pride and Influence in the World Defence* (Ottawa: 2005) 17.

ice-free waters of the Arctic.”¹ The Air Force is to “increase the surveillance and control of Canadian waters and the Arctic with modernized Aurora long-range maritime patrol aircraft, unmanned aerial vehicles, and satellites.”² In addition the Air Force will receive replacements for the Twin Otters of 440 Squadron, and consideration will be made to basing search and rescue aircraft in a northern location. The Land Forces have been tasked to improve the communication abilities of the Rangers, and to increase Regular Forces sovereignty patrols.³

The Martin government’s commitment to improving its Arctic sovereignty and security was also found in domestic policy initiatives. The most important was the “Arctic Strategy.” It was led by officials from the Department of Indian and Northern Development, and included various members of the Federal Government and three territorial governments (most with some association with the ASIWG).⁴ One of its six main objectives was “Reinforcing Sovereignty, National Security and Circumpolar Cooperation.” However, before the Martin Government was able to complete this review, it was defeated by Stephen Harper’s Conservatives in January 2006.

Even before the election was decided, Harper stated his commitment to strengthening Canadian ability to protect its Arctic Sovereignty and Security. Speaking in Winnipeg on December 22 2005, Harper took the unusual electoral step of announcing his commitment to the Arctic. Diefenbaker was the last party leader to campaign on the issue. Harper also committed to several major capital projects if he were elected. Among these were promises to: create a new national sensor system for the north; build three new icebreakers; construct a new military/civilian deep water docking facility in the Iqualuit region; deploy new search and rescue aircraft and unmanned aerial vehicles; and build a new army training base in or around Cambridge Bay.⁵

Since the election, there have been no official pronouncements by the Conservatives as to the status of their pre-election promises, or even of their intent to honour them. However, at the time of the writing of this chapter, there have been unofficial suggestions that the Government has been facing challenges from various departments as to the need for the steps promised. Not surprisingly, the main reason for the “push-back” has been concern over costs. For example, the Department of National Defence has been said to be reluctant to accept the three armed icebreakers, or to pay for the building of new port facilities in the North. Likewise

¹ *Ibid.*, 19.

² *Ibid.*, 19-20.

³ *Ibid.*, 20.

⁴ Government of Canada, *The Northern Strategy*, May 2005, <http://www.northernstrategy.ca/>.

⁵ Conservative Party of Canada, “Harper Stands up for Arctic Sovereignty,” *Stand up for Canada* (December 22, 2005).

the Department of Foreign Affairs has been rumoured to be questioning the need to spend resources on any new enforcement capabilities for the North. But, without official confirmation that such bureaucratic “push-backs” are indeed happening, it is impossible to know for certain what this Government will do. However, rumours are now beginning to circulate that there may be another federal election in 2007. If that were to be the case, then, as with the Martin Government, it is unlikely that any steps will be taken to make good on the Harper Government’s promises.

There are signs that senior government leaders are willing to acknowledge the problem. What is needed is a government that is politically capable of fulfilling its promises. The final question that this chapter will address, therefore, is the likelihood that the will to improve Canadian Arctic security will remain. The answer will depend on the severity and longevity of the threats that are now developing. What, then, are these threats, and how can they be evaluated?

The Sustainability of the New Arctic Security

There are four factors that have led to the renaissance of Canadian Arctic security:

- 1) The attacks of September 11, 2001 drew attention to the vulnerabilities of North America to terrorism.
- 2) The impacts of climate change are increasingly seen as leading to the melting of the Arctic, thereby making it more accessible to foreigners.
- 3) The demand for natural resources, and especially energy sources, pointed to increased exploration and exploitation of the resources that are found in the Canadian north.
- 4) A series of well-publicised international incidents have revived the interest of both the Canadian political elites, and the general public, in defending Canadian Arctic sovereignty and security.

The attacks of 9/11 drastically changed the manner that North Americans view security. They drove home the existence of new threats that replaced the danger posed by the USSR. While debate remains as to the causes of the new threats and the best means of countering them, the attacks made it clear that new, dangerous and unexpected security threats still existed. Thus, the end of the Cold War did not mean the “end of history”. The attacks also drove home the fact that in order for North Americans to remain protected, all borders must be made secure. While no one is expecting an immediate attack by Al Qaeda from Inuvik, potential dangers do exist in the long term. If southern borders are made more secure and the northern ones are not, it stands to reason that

the latter will create a vulnerability. Terrorists could be willing to exploit such openings. (It is unsettling to know that there is still no security screening of passengers boarding aircraft in many of the Canadian northern airports outside of the territorial capitals.) Nevertheless, the attacks of terrorists have demonstrated that there is a need to be on guard against these new threats.

The debate on the impacts of climate change is large and cannot be fully assessed here. However, the most comprehensive review of literature by leading international experts in all fields makes it clear that the Arctic is already being transformed. Furthermore, the Arctic will continue to experience the most pronounced changes in the entire world due to Climate Change. The Arctic Council commissioned a multi-year study that reached an extremely high degree of consensus. *The Arctic Climate Impact Assessment (ACIA)* is clear that the Arctic is warming, and that it will continue to warm at an alarming rate.¹ For Canada and the other Arctic nations, this means that their Arctic regions will become more accessible as the extreme environmental conditions moderate. However, what are not yet clear are the specific local effects. While considerable concern has been raised regarding the prospects of international shipping in an increasingly ice-free Northwest Passage, it remains uncertain as to whether or not international shipping companies will find it more attractive to sail on the Russian side through the Northern Sea Route, or even perhaps over the pole itself, rather than through the Northwest Passage.² All of this depends on how the ice actually melts as climate change warms the Arctic. However, it is clear that the Arctic is physically changing. And perhaps even more importantly than the reality is the *perception* that is being created that the north is becoming more accessible.

The accessibility issue is central to the need to maintain Arctic security because the Canadian North has tremendous resource potential. The discovery of diamonds in the Northwest Territories has moved Canada from being a non-producer to that of the third largest producer behind Botswana and Russia. However, the greatest interest still remains in the potential of Canada's northern gas and oil. There is renewed interest in Canada in developing gas and oil exploration in the region around the MacKenzie River delta.³ This area had undergone extensive exploration in the 1970s but the collapse of oil and gas prices at the end of the 1970s and early 1980s, combined with the decision not to build a pipeline along the MacKenzie River Valley, postponed

¹ Arctic Climate Impact Assessment *Impacts* (Cambridge: Cambridge University Press, 2005).

² For the debate see: Franklyn Griffiths, "Then Shipping News: Canada's Arctic Sovereignty not on thinning ice," *International Journal* vol. 58 no. 2 (Spring 2003); Rob Huebert, "The Shipping News Part II: How Canada's Arctic sovereignty is on thinning ice," *International Journal* vol. 58 no. 3 (Summer 2003); Franklyn Griffiths, "Is Canada's arctic sovereignty threatened?" *Arctic Bulletin - WWF* no. 1.04 (March 2004); and Rob Huebert, "The coming arctic maritime sovereignty crisis," *Arctic Bulletin - WWF* no. 2.04 (July 2004).

³ Canadian Business Association "Oil," (2002) [<http://www.canada-business.ro/info-point/overview/oil.html>].

most of these projects. As energy prices rose in the 1990s and continue to skyrocket in the 2000s, and renewed interest grew in building a gas pipeline along the MacKenzie Pipeline, expectations increased that substantial oil and gas resources would be developed around the MacKenzie River Delta and into the Beaufort Sea. While it is uncertain when the oil and gas resources will be developed and brought to southern markets, skyrocketing energy prices suggest that this will occur sooner rather than later.

The corollary to this issue centers around how best to protect Canadian interests over these resources. While much of the security will remain at the level of police enforcement, the need to protect oil and gas resources will require capable Armed Forces capable of operating in the North.

Finally, the national media is increasingly developing an interest and capability in providing coverage on the issue of Arctic sovereignty, security, climate change and the Northwest Passage. Witness the coverage provided by the *National Post* and the *Globe and Mail* on the Hans Island issue. It seems likely that all future issues featuring northern security and sovereignty will continue to be given good coverage.

Conclusions

In summary, the factors that have pushed Canadian policy-makers to re-examine Arctic security will not soon dissipate. Terrorism will remain a threat to North American security; climate change is not going to reverse itself; at some point oil and gas development will occur in the Canadian North; and the expertise on Arctic sovereignty and security issues developed by the national media will not soon disappear. All of the security threats faced by Canada in its Arctic regions cited in the *Arctic Capability Study* and the Martin Government's *International Policy Statement* and the Conservatives' electoral platform will remain relevant.

Canada is now experiencing a renaissance in how it addresses the issues of Arctic security. It has recognized the cost of its neglect and seems on the verge of developing the tools that it needs to meet the challenges that are already re-shaping the Arctic. Of course, nothing is certain in regards to Governmental action, but it seems likely that the Government will remain - and needs to remain- committed to improving Canada's ability to truly be the "True North Strong and Free."

Chapter 2

The True North: Stronger and Freer with Help

Andrea Charron

Abstract

The current legal impasse between the US and Canada regarding the status of the Northwest Passage is not easily solved. Focusing strictly on the "sovereignty" of the Northwest Passage would be wrongheaded and counterproductive for Canada. Rather, sovereignty must be "put to the side," in order to ensure the protection of Canada's Northern inhabitants and the environment – for only then can Canada be strong and free. There are also pressing issues associated with navigation, bathymetry, and the environment that must be addressed by various Canadian government agencies in cooperation with the United States.

In this chapter, the author argues that rather than taking precipitous action by sending the Canadian Forces northward, for example, the wiser course for Canada would be to take the lead in the North by establishing a bi-lateral agenda with the United States in order to ensure the continued continental security of North America in a "joint" modality.

Résumé

L'impasse juridique dans laquelle se trouvent les États-unis et le Canada concernant le statut du passage du nord-ouest ne sera pas aisément résolue. Mais il serait aberrant et contre-productif pour le Canada de se soucier uniquement de cette question de « souveraineté » qui devrait être « laissée de côté » de manière à assurer la protection des habitants et de l'environnement du nord canadien; gages d'un Canada puissant et libre. Il existe également des problèmes pressants associés à la navigation, la bathymétrie et l'environnement qui devraient être traités par les divers organismes gouvernementaux canadiens concernés, en coopération avec les États-unis.

Dans ce chapitre, l'auteure suggère qu'au lieu d'assurer une présence des Forces canadiennes dans le grand nord, par exemple, il serait plus judicieux pour le Canada de mettre en place un programme bilatéral avec les États-Unis de manière à assurer la sécurité du continent nord américain.

¹The author would like to acknowledge, with heartfelt thanks, Franklyn Griffiths, Ted McDorman, Joel Sokolksy and Jane Boulden for their advice and unwavering commitment to the education of students.

The waters that make up the Arctic and the Northwest Passage (NWP) are the subject of sagas and epic journeys. They are, for Canadians, very special. For US and Canadian lawyers the waters can be a source of consternation. Tied to the legal battle is the diplomatic wrangling that pits US national interests against Canadian sensibilities¹; it represents the quintessential US/Canadian dilemma.

While the United States has framed the Arctic (and Antarctic) as regions rich in national interests and resources and fraught with potential strategic threats, Canada has framed the Arctic, and specifically the NWP, as a litmus test of allied friendship; if the US really liked Canada, it would accept Canada's claim as regards the NWP. Furthermore, although the US has not challenged directly Canadian authority in the NWP (even though it could), Canada has made the NWP a cause célèbre. Canada is its own worst enemy.

In keeping with its framework, the US plan of action is to secure a polar icebreaking fleet for the defence of both the Arctic and Antarctica and the waters in between. The issue of Canada's claims on the NWP has raised barely an eyebrow in Washington; new icebreakers would not "challenge" Canadian authority but they would ensure protection of US interests. Canada's plan of attack so far has been to insist, and insist again, that the NWP is under its control. While some US officials liken the NWP to the straits of Malacca and Hormuz², Canada emphasizes the "Canadianness" of the NWP. In order to achieve an end to the debate, the government of Canada has now seized upon a new tack: an increased military presence in the north will ensure Canada's "sovereignty"³ via the "Canada First" northern strategy.⁴

This paper argues that equating military presence with secured sovereignty is counterproductive and wrongheaded. Rather, bi-national cooperation in pursuit of stewardship of the waters with the US is the wiser course of action. Sovereignty is not *the* issue on which to focus. Ironically, the harder Canada insists that its sovereignty be recognized by the United States, the more likely it is to lose it as a result of a Canadian government acting precipitously.

¹ See also Bernard Stancati, "The Future of Canada's Role in Hemispheric Defense", *Parameters*, Autumn 2006: 103-116.

² *Polar Icebreakers in a Changing World: An Assessment of US Needs*, (Washington DC: National Research Council, 2006): 3-8 (<http://www.nap.edu/catalog/11753.html> for a free download). The NWP, Malacca, and Hormuz are all international straits in the opinion of the US government.

³ Dene Moore, "Military will defend Arctic sovereignty, PM says", *Kingston Whig Standard*, August 14, 2006: 14.

⁴ "Stand Up for Canada", Conservative Party of Canada 2006 Election Platform.

<http://www.conservative.ca/media/20060113-Platform.pdf#search=%22Canada%20First%20%2B%20conservative%20party%22>. See the section on "Defending Canada": 45.

This paper will outline, briefly, the current legal impasse that exists between the US and Canada concerning the NWP.¹ The second and third parts of the paper outline the American point of view, followed by the Canadian perspective in order to set the stage for the other chapters of the *Vimy Paper* dedicated to the Canadian Forces' Arctic requirements. The fourth and concluding section sets the stage for the way forward from this legal impasse.

Most importantly, this paper cautions the Canadian government not to widen further the growing disconnect between US security concerns and Canadian sovereignty concerns and between US and Canada more generally. The current legal battle is not resolvable. On that basis, the best advice is to put the issue of sovereignty 'to the side'. This paper argues that Canada should bolster its presence in the north but not in order to protect Canada's sovereignty; to concentrate solely on this issue would be unproductive.² The main reason to increase Canada's presence in the north is to fulfil Canada's international responsibility to protect the environment, to protect northern Canadians, and to protect our borders, and to do so jointly with the United States.

Part 1: The Legal Impasse

The upcoming scientific *Polar Year* (2007-2008), and climate impact assessments³ suggesting the Arctic is likely to become more ice-free in the future have, once again, focused world attention northward.

Canada's concentration on its Arctic has tended to wax and wane – peaking when Canada believes its sovereignty is being tested, and cresting when the perceived threat is removed.⁴ As a

¹ It is recognized this is not the only legal impasse in Canada's Arctic. Others include the "managed maritime boundary disputes with the US at Dixon Entrance, Beaufort Sea, Strait of Juan de Fuca, and around the disputed Machias Seal Island and North Rock" and asovereignty dispute with Denmark over Hans Island in the Kennedy Channel between Ellesmere Island and Greenland. See CIA Factbook, Disputes, International", <https://www.cia.gov/cia/publications/factbook/geos/ca.html> (accessed September 30, 2006). This paper, however, will focus on the NWP.

² Franklyn Griffiths is right when he says "mistaken naval defence of Arctic sovereignty would be worse than counterproductive for Canada-US relations." See Franklyn Griffiths, "Breaking the Ice on Canada-U.S. Arctic Co-Operation", *Globe and Mail*, February 22, 2006

³ ACIA (Arctic Climate Impact Assessment). *Impacts*, (Cambridge, UK: Cambridge University Press, 2005).

⁴ See Department of Foreign Affairs and International Trade, *The Northern Dimension of Canada's Foreign Policy* (2005): 2. http://www.dfait-maeci.gc.ca/circumpolar/sec06_ndfp_rpt-en.asp Rob Huebert, "Melting Relations: The Evolving Canadian-American Arctic Partnership – Disputes, Challenges, and Opportunities", *Polar Geography*, 29(2), 2005: 126-138;

⁴ Kirtton, John and Don Munton "The Manhattan Voyages and Their Aftermath", *Politics of the Northwest Passage*, Franklyn Griffiths (ed) (Kingston: McGill-Queen's University Press, 1987); Sokolsky, Joel. J., *Defending Canada: US-Canadian Defense Policies* (New York: Priority Press Publications, 1989); Elliot-Meisel, Elizabeth, B., *Arctic Diplomacy: Canada and the United States in the Northwest Passage*, (New York: Peter Lang Publishing, 1998), Grant, Shelagh, D., *Sovereignty or Security: Government Policy in the Canadian North, 1936-1950*,

result, policy for the Arctic has come in similar fits and spurts as a reaction to public outcries that the Canadian Arctic must be protected. Whether it is Russian submarines sailing toward the NWP, or Danish flag bearers heading to Hans Island, Canada's course of action has usually included public outcry followed by diplomatic wrangling. Furthermore, suggestions that the NWP is a strait are seen as a direct challenge to Canada-U.S. relations by Canada. Despite muted assertions by the US that it does not recognize Canada's full control over the NWP, Canada perceives these as direct challenges, rather than a difference of legal opinion. Canada's hot button issue is sovereignty.

The current legal impasse posed by the NWP can be summarized as follows: Canada maintains that the NWP falls within "historic internal waters," and that it is not an international strait. The US maintains that the Passage does not meet the requirements of historic internal waters, and that the NWP is an international strait. Canada insists it has the exclusive right to decide whether ships may or may not enter the Passage,¹ while the US and others (including the European Union) maintain that free access, although not totally unregulated, exists as befits an international strait.

Even if the NWP were an international strait, it is recognized that Canada would have legal authority to impose certain types of measures regarding passing vessels. Any increase in vessel traffic, however, serves to strengthen the US position, since it indicates that a geographic strait is being used for international navigation - an essential characteristic of an international strait. Therefore, Canada's insistence that it have absolute and complete control of the Passage presents an impasse.

It is universally recognized that the Arctic waters are "Canadian" - Canada has unquestioned rights to the living and non-living rights within the Arctic waters, whether the NWP is an international strait or not. (The strait regime is best understood as altering only the nature of vessel passage and not the status of the waters per se).² The issue is the degree of "legal" control Canada may exercise.³ Both the US and Canada have legal arguments which find support in cases from the International Court of Justice (ICJ). Canada, however, appears to believe that increasing its military presence in the North will bolster its case. The US, on the other hand, may be of the view that melting ice and increased shipping traffic will reveal its case to be self-evident.

(Vancouver: University of British Columbia Press, 1988) and Honderich, John, *Arctic Imperative: Is Canada Losing the North?* (Toronto: University of Toronto Press, 1987).

¹ *The Canadian Yearbook of International Law* 2002, vol. XL, (Vancouver: UBC Press, 2003): 497; ¹ Griffiths, Franklyn, "The Shipping News: Canada's Arctic Sovereignty Not on Thinning Ice", *International Journal*, (Spring 2003): 257-28.

² The author thanks Professor Ted McDorman for these comments.

³ Comments by Professor Ted McDorman, Professor of Law, University of Victoria.

All evidence suggests that a solution to the legal impasse regarding the status of the Passage is unlikely.¹ The manners in which a “legal solution” could be sought, however, involve: 1) independent third party adjudication; 2) aggressive Canadian action; or 3) a multilateral approach.

First, a resolution of the legal status of the NWP could be sought from the *International Court of Justice*, or the *International Tribunal for the Law of the Sea*. The Canadian legal argument that the NWP constitutes historic internal waters, however, is not of such strength that success is a reasonably expected outcome. One possible outcome is that both sides would lose. A tribunal would likely reject Canada’s jurisdiction to restrict vessel navigation, and would likewise reject the position of the US that the NWP is an international strait (given current traffic levels). It would conclude that the NWP is “part of Canada’s territorial sea, in which foreign vessels would have the undisputed right of innocent passage”.²

As well, since all international adjudication is based on the consent of states, and the US has not consented to the compulsory jurisdiction of the International Court of Justice nor is it a party to the *UN Law of the Sea Convention*, the direct consent of the US to the litigation would be required. There is little incentive for either state to litigate – for Canada there is no guarantee of winning, and for the US it would require wholesale changes to their current foreign policy as regards international courts.

Second, Canada could exercise (aggressively) its control over the NWP vis-à-vis the US in order to assert its legal position.³ The risk is that the US might respond by direct action, challenging the Canadian assertion, for example, by sending US vessels through the NWP in a public display of defiance of Canada. The ramifications for the sitting government of Canada could be quite dramatic, since a Canadian response is likely to be quite anemic, and Canada-US relations could be severely damaged for decades. Thus it is difficult to see the value of deliberately provoking the US.

Third, Canada could “bandwagon” with other “allies” to force the US to reconsider its legal position vis-à-vis all straits. Others in favour of protecting their own “straits”, include Libya, Lebanon, Somalia, Turkey, and Russia. This would involve re-opening the *UN Law of the Sea Convention* on one of the most carefully nuanced issues – passage right in international straits. There is unlikely to be much appetite for this at the international level. Moreover, as a member of NATO and a major trading nation, Canada benefits

¹ For a detailed explanation, see Donat Pharand, “The Arctic Waters in Relations to Canada”, *Canadian Perspectives on International Law and Organization*, R.St. J. MacDonald, Gerald L. Morris and Douglas M. Johnston (eds), (Toronto: University of Toronto Press, 1974): 434-441.; Andrea Charron, “Canada, the United States, and the Northwest passage: Sovereignty to the Side”, *Polar Geography*, 29(2), 2005: 139-155; ¹ Kratochwil, Freidrich, Paul Rohrllich and Harpreet Mahajan, *Peace and Disputed Sovereignty: Reflections on Conflict Over Territory*, (Boston: University Press of America, 1985): 79-83.

² Ted L. McDorman, “In the wake of the Polar Sea”, *Marine Policy*, October 1986: 252.

³ Taken to extreme, this option could be interpreted as the current “Canada First” policy.

greatly from the existing understanding and practices respecting passage in international straits and this would be at risk if the international strait issue were re-opened.

The alternatives are far worse than the status quo. It is far better for Canada, legally speaking, therefore, if the impasse continues to exist. Furthermore, forcing the issue may prove more damaging than simply putting the issue of sovereignty to the “side,” and focusing on taking the lead in Canada’s Arctic. Crucially, Canadian public opinion must be recognized and considered, but also informed – continuing to promise Canadian sovereignty at all costs may be opening Ottawa to attacks of hypocrisy, and would be unproductive. Furthermore, the warning of Franklyn Griffiths must be heeded. There is no guarantee that either the NWP will become more navigable, or that commercial ships will race to it, waiting for Canada’s attention to be diverted so that they may storm the North.¹ Alarmist reactions will only hurt the Canadian position.

If, according to Stephen Krasner, “sovereignty” in its various forms is comprised on a daily basis by states², should “defending” it be Canada’s priority? Furthermore, against whom would Canada “defend”? Or, as witnessed by Canada’s contribution to the intergovernmental Arctic Council, the International Maritime Organization, and other international fora, is Canada wiser to focus on the pressing issues of the environment, security, northern citizens, and resources? I argue the latter.

Part 2: US Perspective – Homeland Security Expanded

While Canada views challenges in the NWP as an attack on its authority, the US is concerned with security. Since 9/11, with the creation of the *Department of Homeland Security* and a new military organization responsible for homeland defense, *US Northern Command (NORTHCOM)*³, the focus for US homeland security has shifted from an “away” game to a “home” game.⁴ Protecting the “homeland” from home is relatively new for the US, however.

¹ Franklyn Griffiths, “Pathetic Fallacy”, *Canadian Foreign Policy Journal*, Spring 2004. See also “The Shipping News: Canada’s Arctic Sovereignty Not on Thinning Ice”, *International Journal*, Spring 2003.

² Stephen D. Krasner, *Sovereignty: Organized Hypocrisy*, (Princeton NJ: Princeton University Press, 1999): 9-40. Dr. Krasner maintains there are four different types of sovereignty: 1) international legal, 2) Westphalian, 3) domestic and 4) interdependence. When Canada seeks to defend its sovereignty in the north, it is interdependence sovereignty referring to the ability of public authorities to control transborder movements.

³ NORTHCOM assumes responsibility for the continental US, Canada, Mexico, portions of the Caribbean and the contiguous waters in the Atlantic and Pacific oceans up to 500 miles off the North American coastline. See http://www.northcom.mil/about_us/about_us.htm and Philippe Lagassé, “Northern Command and the Evolution of Canada-US Defence Relations”, *Canadian Military Journal* (Spring 2005): 15-22.

⁴ For instance, a new fleet of polar class icebreakers has been proposed in a report to Congress by the *National Research Council* to protect a variety of US interests – including people, resources, the environment and the US’s superpower status. See *Polar Icebreakers in a Changing World: An Assessment of US Needs*, (Washington DC: National Research Council, 2006): 3-8 (<http://www.nap.edu/catalog/11753.html> for a free download).

Evidence suggests that not all of the chains of command and plans of action have been realized yet. The previous “44-year-old Canadian-US defense and security paradigm North American Aerospace Defense [NORAD] [has been] unceremoniously altered, and a new one [NORTHCOM] has now taken its place.”¹ Moreover, and especially since the events of 9/11, *NORTHCOM’s* defence of North America proper (including Canada and Mexico), is expected to be considered by Canadians as an extra layer of US protection *for the US*. The US is (simply) extending homeland defence northward.

The US is aware of the political pressure the government of Canada faces respecting the Arctic but Canadian action has not helped the US. On the one hand, the US notes, Canada cedes sovereignty of its defence against ballistic missiles²; on the other hand, Canada asserts control of the NWP vigorously but with little concrete action.

Furthermore, while the US wishes to talk pragmatically about the realities of security, rescues, commercial transit and research, Canada talks of the “greatness that is the North”³, the “true North strong and free”⁴, and Canada “from sea to sea to sea.”⁵ A disconnect verging on a chasm exists between US security concerns and Canada’s sensibilities. It is clear to the US that successive Canadian governments have found the shuttle run between Canadian political realities and US security demands challenging indeed, especially since the distance between these two “end zones” is lengthening.

Part 3: Canadian Perspective – Redefining Defence Against Help to Defence with Help

Canada is not a pushover. Far from it. When it comes to foreign policy, Canada has always managed to put Canada first – Canadian-style realism⁶ ensures Canada’s national interests are met at minimal cost. For example, DFAIT has set aside only \$2 million dollars to ensure the “Northern Dimension of Canada’s Foreign Policy” (NDFP) is implemented. The NDFP is ambitious.

The document states:

¹ Stancati, “The Future of Canada’s Role...”: 104.

² Former US Ambassador to Canada, Paul Cellucci, suggested that Canada had “[ceded] a sovereign decision-making to the US” by not participating in the US Ballistic Missile Defense program (BMD). See Paul Cellucci, “Off Target”, *MacLean’s*, 118(39), Sept. 26, 2005

³ Speech by Joe Clark, *Statement on Sovereignty*, September 10, 1995 as reprinted in Franklyn Griffiths, *Politics of the Northwest Passage*: 269-273.

⁴ Canada’s national anthem.

⁵ Canada’s new proposed motto by MP Bill Graham (A mari usque ad maria – or from the sea unto the seas). See Randy Boswell, “Bid for three-sea motto rides wave”, *Kingston Whig-Standard*, April 11, 2006. It is unlikely, however, that the US will consider this move as adequate defence of the North.

⁶ Attributed to Joel Sokolsky, Royal Military College of Canada.

"The NDFP is framed by three principles -meeting our commitments and taking a leadership role; establishing partnerships within and beyond government; and engaging in ongoing dialogue with Canadians, northerners in particular. In keeping with this framework, the Northern Dimension of Canada's Foreign Policy has four overarching objectives:

- to enhance the security and prosperity of Canadians, especially northerners and Aboriginal peoples;
- to assert and ensure the preservation of Canada's sovereignty in the North;
- to establish the Circumpolar region as a vibrant geopolitical entity integrated into a rules-based international system; and
- to promote the human security of northerners and the sustainable development of the Arctic."¹

While DFAIT has chosen a dialogue and diplomatic route (and a very important one - especially one involving communication with northerners and Aboriginals, and the Arctic Council)², the Department of National Defence is conducting exercises publicly described as intended to bolster sovereignty activity in the North. Canada now has its own military homeland defence structure, *Canada Command (Canada COM)*, that will coordinate military resources from across Canada to deal with a national security threat - even in the North.³

*Canada's Arctic Waters Pollution Prevention Act*⁴ is monitored by Canada's Coast Guard, as is the voluntary *Arctic Canada's Traffic Zone (NORDREG* - a vessel traffic system or VTRS). Both provide the means to facilitate maritime transportation safely and efficiently. If there were a crisis - if, for example a rescue operation were needed in the Arctic, it is not clear whether *Canada COM* or the Coast Guard would take over. Regardless, the relationship between *Canada COM*, *NORAD*, and *Canadian NORAD Region (CANR)* headquarters in Winnipeg still needs to be clarified. And, if as suggested by a key military planning document, *NORTHCOM* and *Canada COM* become the only two defence

¹ Department of Foreign Affairs and International Trade, *The Northern Dimension of Canada's Foreign Policy* (2005). http://www.dfait-maeci.gc.ca/circumpolar/sec02_nfp-en.asp

² It is curious that DFAIT has just eliminated the position of ambassador for circumpolar affairs. See "Circumpolar ambassador job axed", CBC News, October 3, 2006 <http://www.cbc.ca/canada/north/story/2006/10/03/circumpolar-cuts.html>

³ See National Defence and the Canadian Forces, "Canada Command", http://www.forces.gc.ca/site/newsroom/view_news_e.asp?id=1692 and Joseph T. Jockel and Joel J. Sokolsky, "Renewing NORAD - Now if not Forever", *Policy Options*, (July-August 2006): 53.

⁴ *Arctic Waters Pollution Prevention Act* (R.S., 1985. c/ A-12). Note, the pollution prevention rules DO NOT apply to non-commercial ships such as warships and government ships. Canada needs to rethink this.

commands¹, coordination between departments as well as between the two states will need to be reworked. A demise of NORAD might place more pressure on the Government of Canada to prove to the US that it is not the weak security link of North America – with US attention necessarily focusing on *Canada COM* and not on a joint defence organization.

On the other hand, from Canada's perspective, the US is overstretched. US defence of North America extends from the Antarctic to the Arctic. Moreover, US troops and resources are overcommitted in Iraq, as well as in other theatres of active operation. The US will need Canada, if it wishes to establish a continental security perimeter around the Arctic – an area greater than the size of central Europe.

As Canada's legendary diplomat and scholar John Holmes claimed, Canadian "soil is protected not by American generosity, but by American self-interest, which is more dependable."² This is a fact that frustrates Canadians. The US does not help Canada defend itself – it helps Canada to help defend the US.³

Canadian sensitivity to perceived US threats to its sovereignty has been a long-standing problem in bilateral security relations. While during the Cold War Canadians generally accepted the need for bilateral defence cooperation, even then, sovereignty concerns were a political problem for the government of Canada. Elizabeth Elliott-Meisel wisely counsels therefore, "[u]ltimately, both nations [must] assess at what point sovereignty is compromised in return for security, when diplomatic sensitivity must be subordinated to military necessity, and which operation and command arrangements facilitate cooperation even at the expense of control."⁴

The current government is suggesting that Canada take precipitous action, and spend resources to ensure Canadian sovereignty. But the questions must be asked – what really would be the cost-benefit result of stationing (more) Canadian troops in the North? Would a Canadian Class-8 navy icebreaker, hanging around the NWP, make a difference? And what constitutes "full sovereignty"?⁵ Perhaps Canada needs to re-evaluate its "Canada First" plan.

¹ As quoted in Jockel and Sokolsky, "Renewing NORAD...": 56.

² Holmes, John, "Is There a Future for Middlepowermanship?" J. King Gordon (ed), *Canada's Role as a Middle Power* (Canada: Canadian Institute of International Affairs, 1966): 23 as quoted in Elizabeth B. Elliot-Meisel, "Still Unresolved after Fifty Years: The Northwest Passage in Canadian-American Relations, 1946-1998", *American Review of Canadian Studies*, vol. 29, no. 3 (Fall, 1999): 407-430.

³ The author is grateful to Dr. Joel Sokolsky, Royal Military College, for this insight.

⁴ Elliot-Meisel, "Still Unresolved after Fifty Years: The Northwest Passage in Canadian-American Relations, 1946-1998", *American Review of Canadian Studies*, vol. 29, no. 3 (Fall, 1999): 410.

⁵ McRae, Donald, M., "Arctic Sovereignty: Loss by Dereliction?" *Northern Perspectives*, 22(4). (Winter, 1994-1995): 8.

Part 4: The Way Forward

Canada has a history of reconciliation with the US – there is nothing to suggest that this cannot continue.¹ The new challenge for the Canadian government is a growing anti-American sentiment (which is likely an anti-Bush sentiment) shared by much of the Canadian public that leaves politicians with little room to manoeuvre. In the past five years, *Environics* has noted a twenty-percentage point decrease in positive perceptions of the US by Canadians.² In addition to spending resources on military hardware for the Canadian Forces, some dedicated funds aimed at promoting a pro-American awareness campaign would be money well spent.

What Canada cannot afford is a standoff with the US – digging its heels in to demand the US recognize Canadian sovereignty, “or else,” is likely to strain relations. The US is well aware there is no “or else”. Instead, Canada needs to re-discover its strength and skill in quiet diplomacy, and to re-kindle a strong friendship with a concerned and provoked US neighbour.

Prime Minister Mulroney and President Reagan were able to do just that in signing the *Canada-US 1988 Agreement on Arctic Cooperation*, allowing US Coast Guard icebreakers to pass through the NWP without any impact on its legal status. Any use of the three new US icebreakers would similarly fall under this agreement. The agreement, moreover, facilitates vital research work benefiting both countries.³

If Canada is to continue to push a co-operation agenda in its foreign policy⁴, it needs to evaluate the goal of Canada’s sovereignty claim on the NWP. Is there a consistency, or a disconnect, between its words versus its actions? Why would Canada not accept a continental approach to its security? As David Haglund argues, continentalism does not spell the end of Canada, nor a collapse of independence, nor a corruption of foreign policy.⁵ Optimism, as Haglund counsels, is lacking in all the variants of continentalism. If the goal is to increase presence in the north, then let it be done “multilaterally] by preference, bilateral[ly] by necessity, and

¹ See Michael Byers and Suzanne Lalonde, “Who Controls the Northwest Passage?” Discussion paper for *Canada’s Arctic Waters in International Law and Diplomacy Conference*, National Arts Centre, Ottawa, June 14, 2006.

² Bruce Cheadle, “9-11 Fallout Changed Canada’s Attitude Towards US”, *Cnews*, September 11, 2006. <http://cnews.canoe.ca/CNEWS/Canada/2006/09/10/1822265-cp.html>.

Furthermore, forty percent of respondents stated that the “US was the greatest threat to world peace.”

³ *Agreement between the government of Canada and the government of the United States of America on Arctic Cooperation* (January 11, 1988). Signed by Joe Clark and George P. Schultz. The close relationship between Prime Minister Brian Mulroney and President Ronald Reagan facilitated the establishment of this agreement.

⁴ *The Northern Dimension of Canada’s Foreign Policy*, Foreign Affairs Canada, http://www.dfait-maeci.gc.ca/circumpolar/sec02_nfp-en.asp, (February 10, 2005)

⁵ David G. Haglund, “The Comparative “Continentalization” of Security and Defence Policy in North America and Europe: Canadian Multilateralism in a Unipolar World?” *Journal of Canadian Studies* 38(2), Spring 2004): 11-13.

manifestly continental by default¹ – the importance is the presence, not the particulars regarding the flag of the ship. Ottawa needs to own up to its realist-roots. Canada would be unwise, as counselled by David Haglund, to value, “political (sovereignty) interests much more highly than they [value] American physical security interests”.² To do so would encourage more US ‘self help’ within North America.

The way forward is to leave the issue of sovereignty “to the side” and take the lead in the North in order to set the bilateral agenda. If Canada decides to adopt a “sovereignty-at-all-costs-at-any-price” plan, Canada will lose credibility at home and abroad, as well as the opportunity to cooperate with the US. Canadian action must not be guided solely by sovereignty considerations.

The provision of navigation, bathymetry, ice-breaking, and rescue services is more pressing needs, especially given the number of research missions set for the Polar Year. Russia has taken a substantial lead in the Northern Sea Route, charging various fees for escort services through its passage to its ports. Such services could generate badly needed employment in the north.³ Thus, making certain services available and strongly recommending their use (and charging for them), makes sense.

Canada has and exerts considerable control over vessels that visit ports (or lands) in Canada – including denying permission to enter a port (or land). Therefore, encouraging the use of Canada’s ports and services gives Canada control (including the application of Canada’s Arctic Waters Pollution Prevention Act). Canada, however, should not consider charging mandatory pilotage charges for traversing the NWP without any stops at Canadian ports. This has been rejected for the Torres Strait (Australia), and is likely to be rejected for the NWP as well.

Ensuring that effective environmental laws are actively enforced should be of paramount importance to Canada. Canada has unique laws regarding Arctic waters that are complied with by most vessels. US shipping regulations are far stricter, however, with more severe penalties, for example, than Canada’s for the cruise

¹ Quoted in Haglund, “The Comparative...”: 13 by Bruce W. Muirhead, *The Development of Postwar Canadian Trade Policy: the Failure of the Anglo-European Option*. (Montreal and Kingston: McGill-Queen’s Press, 1992): 15 and J.L. Granastein, *How Britain’s Weakness Forced Canada in the Arms of the United States*, (Toronto: Toronto University Press, 1989).

² Haglund, “The Comparative...”: 18. See also David Cox, “Trends in Continental Defence: A Canadian Perspective”, (Ottawa: Canadian Institute for International Peace and Security, 1986).

³ Statistics Canada, “Harvesting and community well-being among Inuit in the Canadian Arctic: Preliminary Findings from the 2001 Aboriginal Peoples’ Survey – Survey of Living Conditions in the Arctic.” (2001) Catalogue #89-619-XIE. In 2001, there were approximately 46,000 Inuit in Canada the majority of whom lived in the North. The median income was \$13,090 for Inuit, \$50,128 for non-Inuit. The survey indicates that the overwhelming concerns of the Inuit include lack of employment, poor housing, lack of quality education, and lack of health services. (See especially page 17.) (Note the paucity of discussion regarding ‘sovereignty concerns’).

ship industry.¹ A review of such regulations may be useful as part of a larger study.

The US would likely wish Canada to take the lead in its north. Canada, however, will still need help. Most importantly, stewardship of the waters and protection of Northern Canadians must be the primary focus. This is beyond the purview of the Canadian Department of National Defence and the scope of this Vimy Paper, however.

NORTHCOM and *Canada Com* should jointly investigate short-term and long-term security needs in the North, perhaps expanding on the 1988 agreement. Both need to recognize, however, that many of the immediate security threats are under the purview of other Canadian government departments (the Coast Guard, Environment Canada, and Transport Canada), and that they need to work together. Canada, should take the lead, as it did with the "Smartborder" plan.² The US is new to homeland security - Canada could help the US in this regard in the Arctic. Ultimately, as is the case with the Great Lakes, and the 49th parallel, bi-national, cooperative security plans are the most successful, and are the best bet for a continued true North stronger and freer.

¹ Canada's Arctic Waters Pollution Prevention Act requires voluntary reporting and penalties and regulations for Arctic cruise ships, for example, are much harsher in the US. See <http://lois.justice.gc.ca/en/A-12/text.html> for a copy of Canada's Pollution Act. See Transport Canada, "Pollution Prevention Guidelines for Operation of Cruise Ships in Canadian Jurisdiction" versus CRS Report for Congress, "Environmental Activities of the US Coast Guard". <http://ncseonline.org/NLE/CRSreports/06Jun/RS22145.pdf#search=%22Arctic%20Cruise%20Ship%20pollution%20regulations%20%2B%20US%22>. The US Coast Guard marine environmental protection budget is over \$8 million for 2006 (and this is only for prevention activities and does not include the other five maritime safety, search and rescue, aids to navigation and living marine resource and ice operations' budgets and/or the \$30 million in fines issued annually). Linda Nowlan and Ines Kwan, "Cruise Control - Regulating Cruise Ship Pollution on the Pacific Coast of Canada", decries Canada's lack of effective and stringent regulations. <http://www.wcel.org/wcelpub/2001/13536.pdf#search=%22Arctic%20Cruise%20Ship%20pollution%20regulations%20%2B%20US%22> <http://www.tc.gc.ca/MarineSafety/TP/TP14202/TP14202e.pdf#search=%22Arctic%20Cruise%20Ship%20pollution%20regulations%20%2B%20US%22>. See also Sue Dobson, Alison Gill and Sam Baird, "A Primer on the Canadian Pacific Cruise Ship Industry" (May 2002), http://www.sfu.ca/coastalstudies/Cruise_Ship.pdf#search=%22Arctic%20Cruise%20Ship%20pollution%20regulations%20%2B%20US%22.

² See "Smart Border", *Foreign Affairs and International Trade Canada*, http://geo.international.gc.ca/can-am/main/border/key_border-en.asp.

Chapter 3

The Law of the Sea Convention and the Northwest Passage

James C Kraska

Abstract

Concern over climate change has renewed discussions over the legal status of the Arctic and Subarctic intercontinental maritime route connecting the Atlantic to the Pacific, referred to as the "Northwest Passage." Over the last thirty years, Canada has maintained that the waters of the Passage are some combination of internal waters or territorial seas. Applying the rules of international law as reflected in the Law of the Sea Convention suggests that the Passage is a strait used for international navigation. Expressing concerns over maritime safety and security, recognition of northern sovereignty and protection of the fragile Arctic environment, Ottawa has sought to exercise greater authority over the Passage. In this chapter, the author suggests that Canada can best achieve widespread global support for managing its maritime Arctic by first acknowledging that the Passage constitutes an international strait, and then working through the International Maritime Organization to develop a comprehensive package of internationally-accepted regulations.

Résumé

Les inquiétudes au sujet du changement climatique ont réalimenté le débat sur le statut juridique de la route maritime intercontinentale de l'Arctique et du subarctique, désignée passage du Nord-Ouest, qui relie l'Atlantique au Pacifique. Au cours des 30 dernières années, le Canada a soutenu que les eaux du passage représentent une combinaison d'eaux internes et de mers territoriales. Selon les règles du droit international, telles qu'elles figurent dans la Convention sur le droit de la mer, le passage est un détroit servant à la navigation internationale. Invoquant ses préoccupations au sujet de la sécurité maritime, de la reconnaissance de la souveraineté du Nord et de la protection du fragile environnement de l'Arctique, Ottawa a cherché à exercer une autorité accrue sur ce passage. Le présent document suggère que le Canada pourrait se rallier un soutien mondial généralisé pour la gestion de l'Arctique maritime en admettant que le passage est un détroit international et en collaborant avec l'Organisation maritime internationale pour mettre au point un ensemble détaillé de règlements internationalement acceptés.

I. Loss of Sea Ice

Over the past thirty years, the annual average sea-ice extent has decreased about 8 percent, or nearly one million square kilometers—an area larger than all of Norway, Sweden, and Denmark combined.¹ The extent of sea-ice has declined more dramatically in summer than the annual average, with loss amounting to 15-20 percent of late-summer ice coverage.² Moreover, a consensus is building that the melting trend is accelerating, as Arctic temperatures have increased over the last few decades.³ Winter temperatures in Alaska and Western Canada, for example, are 3-4° C over the past fifty years, and there is an expectation that larger increases are projected.⁴ The five Global Climate Models (GCMs) utilized in the Arctic Climate Impact Assessment (ACIA) project a decline in winter maximum extent ice over the next hundred years; conclusions among the models vary about the extent of summer ice—with predictions indicating it will remain relatively constant to indicating summers will be ice-free.⁵ Scientists believe these changes are one major reason for dramatic environmental events, such as the recent detachment of a 66 square mile giant ice shelf from Ellesmere Island, about 800 kilometers from the North Pole.⁶ Coupled with other environmental stress such as illegal fishing, over-fishing, and pollution, there is concern that the trends in Arctic climate change may overwhelm the adaptive capacity of some Arctic ecosystems and reduce or even eliminate populations of living resources.⁷

The policy implications for these changes could be enormous, and much of the attention has focused on the role of the Northwest Passage. The passage is comprised of a collection of alternative maritime transit routes linking Europe and the Atlantic Ocean with Asia and the Pacific Ocean, routed through the northern tier of the North American continent.⁸ The route is 9,000 kilometers shorter than transiting the Panama Canal and 17,000 km shorter

¹ Susan Joy Hassol, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (2005) at pp. 12-13, available at: <http://amap.no/acia/>.

² Susan Joy Hassol, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (2005) at pp. 12-13, available at: <http://amap.no/acia/>.

³ Susan Joy Hassol, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (2005) at pp. 12-13, available at: <http://amap.no/acia/>.

⁴ Susan Joy Hassol, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (2005) at pp. 12-13, available at: <http://amap.no/acia/>.

⁵ See generally, John E. Walsh and Michael S. Timlin, v.22 no. 1 *Polar Research* (June 2003).

⁶ The ice had floated on the sea, but been connected to land. Some scientists believe the separation of the ice from land is the largest event of its kind in Canada in 30 years. Steve Lillebuen, *Ancient Ice Shelf Snaps and Breaks Free From Canadian Arctic*, *Canoe News* (CNEWS Network), 28 December, 2006, available at: <http://cnews.canoe.ca/CNEWS/Science/2006/12/28/3041440-cp.html>.

⁷ Susan Joy Hassol, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (2005) at p. 5, available at: <http://amap.no/acia/>.

⁸ Pullen, *What Price Canadian Sovereignty?*, U.S. Naval Institute Proceedings 66 (Sep. 1987).

than the Cape Horn route.¹ Some suggest the decline in sea ice will spur a dramatic increase in shipping through the passage, raising concerns that the traffic will generate harmful external affects, and impose additional stress on the natural environment. Technological advances in shipping design and construction and navigation also could improve the safety and feasibility of the passage for more routine traffic. The expected inflow of shipping traffic has revived the debate over the legal status of the route, with Canada suggesting the passage lies within territorial or even internal waters, and the United States and the European Union viewing the passage as an international strait open to all nations.² The outcome of the debate may not be as critical as some would believe, since acceptance of the passage as an international strait would permit Canada to seek development of internationally accepted standards for protecting the strait at the International Maritime Organization. Additionally, even if the climate becomes warmer, it is not clear whether the change necessarily will increase the attractiveness of the passage to routine international shipping. If warming summers decrease the amount of first year fast ice, it could permit old ice to drift into the passage and block narrow channels.³ Old ice is extremely strong, posing a hazard even to icebreakers. Even a relatively ice-free Arctic may create a false optimism for a large amount of commercial shipping, as the passage could become inhospitable to routine traffic due to local congestion caused by mounting dangerous winds and currents.⁴

II. Canadian Claims

There is no doubt that the potential effect of climate change on the islands and waters which lie immediately north of continental Canada, an area commonly referred to the as the “Canadian Arctic,” occupies a more significant part of the national consciousness in Canada than in the United States. Canadians consider themselves more oriented toward the Arctic than their American neighbours, although ever since the purchase of Alaska, the United States also has been an Arctic nation.

¹ John Falkingham, Dr. Humfrey Melling and Katherine J. Wilson, Shipping in the Canadian Arctic: Possible Climate Change Scenarios, Weathering Change (Newsletter of the Northern Climate Exchange, 2002), at p. 4, available at: http://yukon.taiga.net/knowledge/initiatives/NCE_Newsletter_Fall2002.pdf.

² Doug Struck, Dispute Over NW Passage Revived; U.S. Asserts Free Use by All Ships; Canada Claims Jurisdiction, The Washington Post, November 6, 2006, at p. A18.

³ K.J. Wilson et al, Shipping in the Canadian Arctic, available at: http://www.arctic.noaa.gov/detect/KW_IGARSS04_NWP.pdf.

⁴ K.J. Wilson et al, Shipping in the Canadian Arctic, available at: http://www.arctic.noaa.gov/detect/KW_IGARSS04_NWP.pdf.

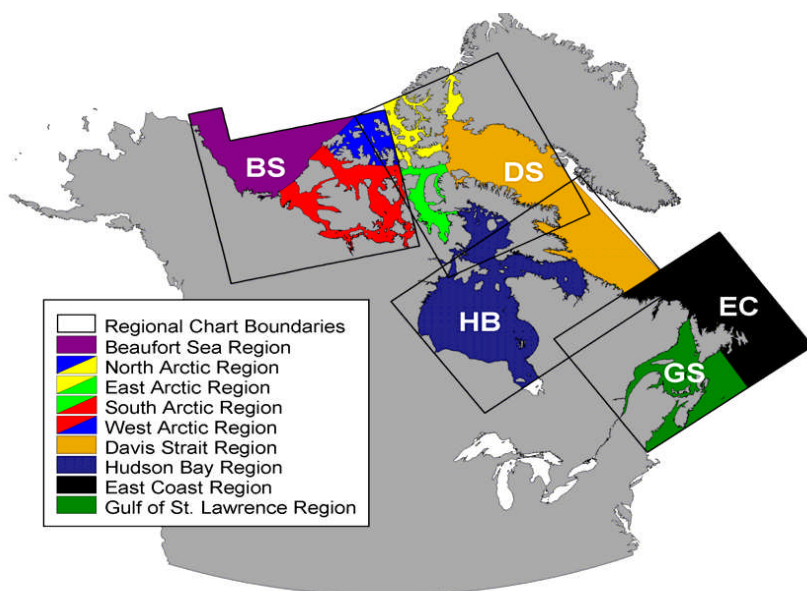


Figure 1: Ice Chart Boundaries (outlined in black) and 9 subregions¹

The legal debate over the status of the passage is coloured by the historical and contemporary political context and the dynamic nature of Canadian claims. Thirty-five years ago, for example, Canada suggested it had authority to assert sovereignty over regions of the Arctic Sea, while the United States rejected claims that the waters constituted the internal waters of Canada.² More recently, the *Globe and Mail* newspaper caused a stir when it reported that the passage could be navigable by regular ships for part—or even all—of the year within the next decade.³ There is apprehension that the area would become the “Panama Canal of the north,” with the ecologically sensitive area trashed by “cringing prosperity.”⁴

¹ K.J. Wilson et al, Shipping in the Canadian Arctic, available at: http://www.arctic.noaa.gov/detect/KW_IGARSS04_NWP.pdf, reprinted from, W.A. Black, Sea Ice Survey, Queen Elizabeth Islands Regions Summer Survey, 1962, Geographical Paper No. 39, Canada Department of Mines and Technical Surveys, Geographical Branch, Queens Printer, Ottawa, 44 pp.

² Theodore L. Eliot, Jr. United States Department of State, Information Memorandum for Mr. Kissinger—The White House, 12 March 1970. Foreign Relations 1969-1976, vol. E-1, Documents on Global Issues 1969-1972, available at: <http://www.state.gov/r/pa/ho/frus/nixon/e1/53180.htm>.

³ Alanna Mitchell, The Northwest Passage Thawed, The Globe and Mail, 5 February, 2000 at p. A9, available at: <http://www.carc.org/whatsnew/writings/amitchell.html>.

⁴ Alanna Mitchell, The Northwest Passage Thawed, The Globe and Mail, 5 February, 2000 at p. A9.

This chapter suggests that the Law of the Sea does not support some of these excessive claims to the passage, particularly those predicated on a liberal interpretation of straight baselines and that take broad license with internal waters. More importantly, however, this author believes Canada could achieve all its most important policy goals for the passage, and particularly widespread acceptance and compliance of Canadian regulations for enhanced safety, security, and environmental protection of the passage, by crafting those regulations through the International Maritime Organization.

The Honorable Pierre Pettigrew, Minister of Foreign Affairs, delivered a speech in 2005 in which he laid out Canada's assessment of its claims of sovereignty in the Canadian Arctic. Among his major points, he first suggested that Canada has done well in consolidating and affirming title to its Northern land territory—with the dispute involving Denmark over Hans Island being the notable exception. This point is critical, since it is not always apparent that all Canadians understand that there are no challenges to Canadian territorial sovereignty in the Arctic (except for Denmark and Hans Island). Second, he offered that no nation disputes Canada's authority over resources or environmental protection. This contention is well-settled, as the 1982 United Nations Law of the Sea Convention (Law of the Sea Convention) already guarantees Canadian jurisdiction over living and non-living resources out to 200 nm. Third, he expressed concern over increasing shipping in the Canadian Arctic, but indicated Ottawa does not oppose international navigation, "so long as conditions and controls established by Canadians to protect the security, environmental and economic interests of our northerners are met." This assertion is not contentious so long as Canadian regulations reflect internationally accepted standards, are applied in a manner that does not discriminate among foreign flag states, and are endorsed by the International Maritime Organization. Finally, he indicated that Canada intended to work to ensure that it exercised control over foreign vessels traversing the Northwest Passage.¹ This statement hinges on the definition of "control." With careful crafting and active international engagement, all of these goals likely could be met, so long as regulation of the Northwest Passage was pursued through the International Maritime Organization, in addition to the Parliament in Ottawa.

The exact nature of Canada's claims over the waters of the Canadian Arctic has shifted over time between regarding them as

¹ Pierre Pettigrew, Canada's Leadership in the Circumpolar World, Notes for an Address by the Hon. Pierre Minister of Foreign Affairs, at the Northern Strategy Consultations Roundtable on Reinforcing Sovereignty, Security and Circumpolar Cooperation, 22 March 2005, available at: http://www.dfait-maeci.gc.ca/circumpolar/sec06_speeches_003-en.asp.

internal waters or territorial waters, or a mixture thereof.¹ The claims are dependent on the application of straight baselines that project into the sea, purporting to enclose international waters. The often repeated assertion of Canadian “sovereignty” has acquired an elusive definition; in the media it has become a rhetorical vessel containing varying elements of control, authority, and perception.² There is the sense that Canada would like to exercise sovereignty over the waters and have them recognized as internal waters, but Ottawa has never really decided how to do this or precisely what theory might be most effective in obtaining the support of the international community.³ Relying on a series of claims and legislative acts over a period of time, Canadians typically view these efforts as having coalesced into a convincing package of evidence to support claims of sovereignty. The “internal waters” claim is the most tenuous under international law, constituting an appropriation of international navigational rights that have been reserved for the global community.⁴

Outside of government, some of the rhetoric from Canada is particularly undisciplined, with nongovernmental organizations and media making seemingly self-evident assertions that the waters are under Canadian “control,” “oversight,” “jurisdiction,” or “sovereignty.” Some believe that an increased level of sovereignty-affirming activities by the Canadian government will secure Canadian claims.⁵ Paradoxically, rather than focusing their efforts on multilateral efforts to protect Arctic ecology, Canadian environmental groups are among the most strident in unilateral assertion of Canadian sovereignty over the passage in order to avert what they see as impending ecological catastrophe from increased shipping.⁶

The position of the European Union and the United States is that the Northwest Passage is a strait used for international navigation. It is useful to take a fresh look at the issues, beginning with the inseparable relationship between Canada and the United States and then returning to the basic sources of applicable

¹ Canadian External Affairs legal Bureau briefing of May 21, 1987, in 1987 Canadian Yearbook of International Law 406, and Legal Bureau paper of March 29, 1988, in 1988 Canadian Yearbook of International Law 314.

² Matthew Carnaghan and Allison Goody, Canadian Arctic Sovereignty, Political and Social Affairs Division, Parliamentary Information and Research Service, Library of Parliament, PRB 05-61E, 26 January 2006 at p.2, available at: <http://www.parl.gc.ca/information/library/PRBpubs/prb0561-e.htm>.

³ Dr. Rob Huebert, International Law, Geopolitics and Diplomacy in the Northwest Passage, The Journal of Ocean Technology vol. 1 no. 1 (Summer 2006) at 16, 16.

⁴ Canada is not alone among coastal states in asserting more generous maritime coastal state claims that purport to control or impede international navigation and overflight. In fact, there are more than 100 illegal, excessive claims worldwide that declare limitations on vital navigational and overflight rights and freedoms.

⁵ Rob Huebert, Renaissance in Canadian Arctic Security, Canadian Military Journal (Winter 2005-06), pp. 17-29 and Rob Huebert, The Shipping News: Part II: How Canada's Arctic Sovereignty is on Thinning Ice, v.58 no. 3 International Journal (Summer 2003).

⁶ Rob Huebert, The Coming Arctic Maritime Sovereignty Crisis, Arctic Bulletin—World Wildlife Federation No. 2.04 (July 2004).

international law. The 1982 Law of the Sea Convention, which is regarded as an accurate reflection of oceans law excepting primarily the seabed mining provisions, clarifies the legal issues involved. Recent developments at the International Maritime Organization in the area of safety, security and marine environmental protection, particularly with regard to vital sea lanes, provide a practical model for resolving the dispute.

III. Agreeable Neighbors

In 1906, Canada claimed Hudson Bay as historic waters; the United States did not recognize the claim and protested it that same year.¹ From 1906 to 1987, there were only 36 recorded transits through the Passage. In 1952 and again in 1957, U.S. Coast Guard cutters transited the passage. In October, 1967, Canada established straight baselines around Labrador and Newfoundland.² The United States protested the claims that same year.³ Two years later, a similar order, which the United States also protested, claimed straight baselines for Nova Scotia, Vancouver Island, and Queen Charlotte Islands.⁴

The modern disagreement over the passage crystallized around the voyage of the *SS Manhattan* from Beaufort Sea through the Northwest Passage to Davis Strait in 1969. Without receiving prior permission from Canada, the vessel, accompanied by two U.S. Coast Guard icebreakers, made the transit.⁵ The voyage was only the eleventh complete transit of the Passage and the first since World War II by a non-government vessel.⁶ The Manhattan transit was intended to demonstrate the economic feasibility of icebreaking bulk cargo carriers to steam year round from Alaska to the East Coast of North America.

At the time, Canada claimed a 3 nm territorial sea, so the transit was through international waters except where Canadian waters overlapped the McClure Strait.⁷ The voyage highlighted the inconclusive legal status of the Passage, resulting in several Canadian responses. Most importantly, in response to the transit, Canada implemented the Arctic Waters Pollution Prevention Act,

¹ Maritime Claims Reference Manual (MCRM), DoD 2005.1-M (June 2005), at p.96. The MCRM is publicly available at: <http://www.dtic.mil/whs/directives/corres/html/20051m.htm>.

² Order-in-Council 1967-2025, as cited in MCRM at pp. 96. Latitude and longitude coordinates for the Canadian straight baseline system for Newfoundland are provided in Table C1.T34 at pp. 100-103.

³ MCRM, p. 96.

⁴ Order-in-Council P.C. 1969-1109, MCRM, p. 96. The Canadian straight baseline system for Nova Scotia are provided in Table C1.T33, for Vancouver Island at Table C1.T35 p. 104 and for Queen Charlotte Islands at Table C1.T36, p. 105 of the MCRM.

⁵ J. Ashley Roach and Robert W. Smith, *United States Responses to Excessive Maritime Claims* (2d ed. 1996) at p. 339.

⁶ Thomas C. Pullen, *What Price Canadian Sovereignty*, U.S. Naval Institute Proceedings (September 1987) at 66, 69-71.

⁷ A nautical mile equals one minute of latitude at the equator: 1,852 meters or 6,076.03 feet. In comparison, the statute mile on land is 5,280 feet.

which extended Canadian environmental enforcement out to 100 nm from the claimed baselines and into the Arctic Ocean and Beaufort Sea. That law made reference to the “new Canadian North” and is an important signpost on Canada’s journey to assert more control in the Arctic.¹ In 1997, Canada also extended its territorial sea from 3 nm to 12 nm, aligning the outer limits of the Canadian territorial sea with the limit permitted under the Law of the Sea Convention.² Extending the territorial sea gave Canada sovereignty over the waters seaward of lawfully drawn baselines, generally measured from the low-water mark on the land. As a result of the new 12 nm limit, much of the Northwest Passage became enclosed in Canadian territorial seas. But it must be remembered that international shipping remained entitled to innocent passage through territorial seas, as well as to the more robust right of non-suspendable transit passage in international straits.³

These claims set the stage for establishment of straight baselines around Canadian Arctic Islands in 1986.⁴ The regulation purporting to do so, the Territorial Sea Geographical Coordinates Order, asserted:

Whereas Canada has long maintained and exercised sovereignty over the Waters of the Canadian archipelago;

Therefore, Her Excellency the Governor General in Council, on the recommendation of the Secretary of State for External Affairs, pursuant to subsection 5(1) [R.S.C. 1970, c.45 (1st Supp.) § .3] of the Territorial Sea and Fishing Zones Act, is pleased hereby to make the annexed order respecting the geographical coordinates of points from which baselines may be determined, effective January 1, 1986.⁵

Like the others before it, this Arctic claim was not recognized by the United States, and Washington protested the new order in 1985 and 1986.⁶ The straight baseline and historical waters claims were retained by the Oceans Act of January 1997, although the Territorial Sea and Fishing Zone Act was repealed.⁷ The next year, the United States and Canada signed a treaty on Arctic

¹ Trevor Lloyd, *Canada’s Arctic in the Age of Ecology*, Foreign Affairs (July, 1970, pp. 726-740, at p. 740.

² An Act Respecting the Oceans of Canada (Oceans Act), January, 1997, as cited in, *Maritime Claims Reference Manual*, DoD 2005.1-M (2005) at p. 96.

³ Articles 44 and 45, Law of the Sea Convention.

⁴ Order-in-Council P.C. 1985-2739 in January 1986, MCRM at p. 96. Coordinates for the Canadian Arctic Islands are provided in Tables C1.T37, C1.T38 and C1.T39 at pp. 106-113, MRCM.

⁵ MCRM, at p. 105-06.

⁶ *Maritime Claims Reference Manual*, DoD 2005.1-M (June, 2005) at p. 96.

⁷ *Maritime Claims Reference Manual*, DoD 2005.1-M (June, 2005) at p. 96 and 106.

cooperation in which they sought to, “facilitate navigation by their icebreakers in their respective Arctic waters and to develop cooperative procedures” for doing so.¹ In the agreement the United States undertook to request Canadian consent for navigation by U.S. icebreakers within waters claimed by Canada to be internal,² although the parties stated that the agreement does not affect the respective position of either government on the Law of the Sea in the Arctic. The treaty also invokes the value of cooperation for research conducted by icebreakers during Arctic voyages, establishing that the United States is seeking Canadian permission, not for the actual transit or the activity of icebreaking, but rather to obtain Canadian consent for the conduct of “marine scientific research,” which coastal states may regulate throughout their territorial sea and exclusive economic zone (EEZs) under the Law of the Sea Convention.³ Coast Guard icebreakers are multi-mission platforms,⁴ so regulating one fairly occasional activity—marine scientific research—may be seen as a subterfuge for regulating the entire transit. On the other hand, the agreement only purports to coordinate marine scientific research in the Arctic marine environment during icebreaker voyages, and it does not affect the rights of passage by other warships, other government vessels or commercial shipping.⁵

The unilateral promise extended by the United States in the 1988 agreement and the ensuing state practice of seeking permission for icebreaking transits that conduct marine environmental research can be viewed as in tension with other U.S. navigational assertions and diplomatic protests. The United States maintains that all states are entitled to freedom of navigation through the Passage. At the same time, it has agreed to submit requests for transits by the class of vessel most likely to conduct passage.⁶ Further, although the accord applies only to icebreakers, some have erroneously argued that it implies *de facto* coverage of commercial vessels.⁷

¹ Article 3, Agreement between the Government of Canada and the Government of the United States of America on Arctic Cooperation, January 11, 1988 (TIAS 11565).

² *Id.*

³ Articles 245 & 246, Law of the Sea Convention.

⁴ See, e.g., <http://www.uscg.mil/pacarea/healy/>.

⁵ J. Ashley Roach and Robert W. Smith, *United States Responses to Excessive Maritime Claims* (2d ed. 1996) at p. 348-349.

⁶ Marianne Nash Leich, *U.S. Practice: Contemporary Practice of the United States Relating to International Law*, 83 *American Journal of International Law* 63, p. 63 (January 1989). The United States submitted the first request under the Agreement on October 10, 1988 to request Canada's consent for the transit of a U.S. Coast Guard cutter, *Polar Star*. In conveying the request, the United States submitted in a note, an invitation for a Canadian scientist and officer of the Canadian Coast Guard to be on board *Polar Star*. The United States also indicated that the icebreaker would comply with all Canadian pollution control standards. *Id.* at pp.63-64. See <http://www.uscg.mil/pacarea/pstar/pstar.html>.

⁷ Oran R. Young, *Arctic Politics: Conflict and Cooperation in the Circumpolar North* (1992) at p. 163.

The Law of the Sea Convention defines the term “warship” broadly, to include Coast Guard cutters.¹ “[W]arship means a ship belonging to the armed forces of a State bearing external marks distinguishing such ships of its nationality, under command of an officer duly commissioned by the government of the state and whose name appears in the appropriate service list or its equivalent, and manned by a crew which is under regular armed forces discipline.”² The accepted status of Arctic waters in large part turns on the development of state practice and customary law, and therefore conceding to a voluntary consent regime for one class of state vessels, particularly those regarded as “warships,” regardless of their activities, would not bode well for promoting the objective of freedom of navigation. However, while conducting transit passage foreign vessels must obtain the prior authorization of the states bordering the strait before conducting marine scientific research and hydrographic survey activities does not affect freedom of navigation.³

In sum, the last thirty years have been punctuated by a series of Canadian archipelagic, straight baseline, and historic claims that the United States has not recognized and often protested. Canada asserts that the waters constitute its internal waters, having drawn a series of straight baselines that enclose these waters, whereas the United States considers the Passage to be subject to the regime of transit passage through a strait used for international navigation.⁴ In November 2006, while speaking at a conference in Canada, the former U.S. Ambassador to Ottawa, Paul Cellucci, was quoted in the Canadian media as saying, “It is in the security interests of the United States that [the Canadian Arctic] be under the control of Canada.”⁵ Soon thereafter, the current U.S. Ambassador, David Wilkins, restated the longstanding U.S. position that the passage is an international strait.⁶

The disagreement between the United States and Canada, although amicable, stretches for decades. Despite evidence of thinning sea ice that has brought the issue of the passage out of hibernation, it is unlikely to cause significant friction between Canada and the United States. Sharing close proximity, Canada and the United States share ingrained cultural respect for promotion of the rule of law. Both the United States and Canada are founding members of the United Nations and the North Atlantic Treaty (NATO). Under the NATO Treaty, parties are required to consult

¹ See, Bernard H. Oxman, *The Regime of Warships in the Law of the Sea*, v. 24 no. 4 *Virginia Journal of International Law* (Summer 1984) pp. 809-862 at p. 812-3, and <http://www.hazegray.org/worldnav/usa/guard.htm>.

² Article 29, Law of the Sea Convention.

³ Article 40, Law of the Sea Convention.

⁴ R. R. Churchill and A.V. Lowe, *The Law of the Sea* (3rd ed. 1999) at p.106.

⁵ Doug Struck, *Dispute Over Northwest Passage Revived: U.S. Asserts Free Use by All Ships; Canada Claims Jurisdiction*, *Washington Post*, 6 November 2006, p. A18.

⁶ Doug Struck, *Dispute Over Northwest Passage Revived: U.S. Asserts Free Use by All Ships; Canada Claims Jurisdiction*, *Washington Post*, 6 November 2006, p. A18.

whenever, in the opinion of one of them, the territorial integrity, political independence, or security of any party is threatened.¹ Not only do the two democracies occupy the same hemisphere of the planet, they also share the longest peaceful border in the world. Their foreign relations are immensely productive and mutually beneficial, the two economies are inextricably bound, and the two sovereign states share deep social, cultural, and familial ties. President John F. Kennedy, when asked about America's northern neighbor, said, "Geography has made us neighbors. History has made us friends. Economics has made us partners and necessity has made us allies."² These realities lend confidence to the contemporary assessment of one Canadian scholar, who wrote, "[T]his particular dispute is not only off the back burner, but off the stove. It will be altogether out of the kitchen if Canada and the United States can find their way to new [post-911] North American security cooperation."³



Figure 2: Charting the course of Canadian Icebreaker Amundsen in 2006⁴

¹ Article 4, North Atlantic Treaty, 4 April 1949.

² President John F. Kennedy, as quoted in, Joshua Kurlantzick, Oh. Canada. *The Washington Monthly*, June 2001, pp. 21-24 at p. 24.

³ Franklyn Griffiths, *Pathetic Fallacy: That Canada's Arctic Sovereignty is on Thinning Ice*, *Canadian Foreign Policy v. 11*, No. 3 (Spring 2004) pp.1-16, at p. 5.

⁴ Charting the course of Canadian Icebreaker Amundsen in 2006, *The Washington Post*, 6 November 2006, at A18.

IV. Codifying Customary International Law

In the years preceding the negotiation of the Law of the Sea Convention, customary international law recognized and developed a carefully balanced approach between coastal state authority and global freedom of navigation. This approach represents the central bargain that later was codified in the final text of the treaty, which was opened for signature in 1982. Consequently, the Law of the Sea reflects a functional model that balances coastal state rights and jurisdiction over water adjacent to the coastline with the rights of the international community to exercise maritime freedom of navigation and overflight.

Some are attracted to the idea that there is one simple formula for determining sovereignty and jurisdiction throughout areas adjacent to the coastal state, but that perspective is erroneous. Seaward of the baseline, there are different functional areas in the Law of the Sea, including the territorial sea, the contiguous zone and the EEZ. Each of these areas permits the coastal state to exercise some amount of jurisdiction over transiting vessels, but all of them permit the international community the right of navigational freedoms.

The Law of the Sea Convention serves as the most useful point of departure for analyzing the status of the waters of the Canadian Arctic. Canada acceded to the Law of the Sea Convention in November 2003. As a matter of law, Canada is bound to the rules contained in the treaty and has encouraged other countries to accede to the Convention.¹ The United States is not yet a party to the treaty. In 1983, the United States declined to sign the Convention, citing concern that the treaty's deep sea-bed mining provisions were contrary to the principles and interests of industrialized nations and would impede the aspirations of developing states.² At the same time, however, the United States recognized that those portions of the treaty relating to navigation and overflight reflect customary international law.

The United States will assert its navigation and overflight rights and freedoms on a world-wide basis in a manner that is consistent with the balance of interests reflected in the Convention. The United States will not, however, acquiesce, in unilateral acts of other States designed to restrict the rights and freedoms of the international community in navigation and overflight and other related high seas uses.³

¹ Prime Minister Stephen Harper, Securing Canadian Sovereignty in the Arctic, 12 August, 2006, available at: <http://www.pm.gc.ca/eng/media.asp?id=1275>.

² Presidential Oceans Policy Statement, 10 March 1983.

³ Presidential Oceans Policy Statement, 10 March 1983.

Freedom of navigation is the core U.S. oceans interest, deeply embedded in the American conscience. For more than two hundred years, the U.S. economy and national security have been dependent on maritime manoeuvrability and mobility. The very first war fought by the new republic was against the Barbary States over the right to transit the Mediterranean without paying tribute. Freedom of navigation comprised the second of President Wilson's progressive Fourteen Points delivered in a speech to a joint session of Congress in January 1918. During the lengthy negotiations to the Third United Nations Conference on the Law of the Sea in the 1970s, which resulted in the Law of the Sea Convention, the United States displayed a willingness, even at the height of the Cold War, to partner with the Soviet Union to address common concerns by preserving freedoms of navigation.¹ The two superpowers led a majority of states into recognizing the right of transit passage through international straits. Through years of negotiations, the United States joined the Soviet Union on the issue, even going against some Allied straits states.²

The Convention is the most comprehensive oceans treaty ever, containing unsurpassed breadth and a high degree of complexity. With more than 150 member states, the Convention has become an essential restatement of much of accepted oceans law, excepting primarily the controversial provisions relating to seabed mining in Part XI. The Convention reflects the development of customary international law relating to oceans freedom, jurisdiction, and sovereignty in a carefully calibrated balance of the interests of coastal states and states bordering straits with the rights of the international community to freedom of navigation and overflight throughout the world's oceans.

In exchange for generous provisions preserving freedom of navigation by all nations, coastal states were afforded the right to protect certain sovereignty and sovereign rights, authority and jurisdiction seaward, affecting the legal status of the surface of the ocean waters, the water column, the seabed and the airspace above the water. Strategists seeking a correct and sophisticated understanding of the legal status of these areas of water should eschew simplistic shortcuts or predetermined policy preference if they are to conduct analysis supportable by the Convention.

Analysis of oceans claims and jurisdictions in the Law of the Sea begins from properly drawn, normal or straight baselines. Typically, the normal baseline for measuring the breadth of the

¹ See, e.g. John Norton Moore, *The Regime of Straits and the Third United Nations Conference on the Law of the Sea*, pp.77-121 (Jan. 1980) at pp.82-83.

² See, for example, General Alexander Haig, *Memorandum for the President of the United States—The White House, UN Law of the Sea Conference: Formulation of Straits Item on Agenda, Foreign Relations 1969-1976*, vol. E-1, Documents on Global Issues 1969-1972, available at: <http://www.state.gov/r/pa/ho/frus/nixon/e1/53299.htm>.

territorial sea is the low-water line along the coast of the territory.¹ Waters landward of the baselines are internal waters, an area in which the coastal state exercises complete and absolute sovereignty.²

Some governments have taken the view that the ice itself can be occupied, converting frozen water into a sort of “ice territory” with attendant rights.³ This is a purely theoretical invention that has no basis in either customary international law or the Law of the Sea Convention. There is no authority or provision in the treaty to assimilate ice-covered water as “territory” and thereby claim a baseline at the point the ice meets liquid water.

Straight baselines may be drawn in localities where the coastline is deeply indented and deeply cut into, or if there is a fringe of islands along the coast in its immediate vicinity.⁴ Bays may be enclosed with straight baselines, converting those waters to the status of internal waters, but only so long as the closing line from the low-water mark from one side of the bay and connecting to the other does not exceed 24 nm.⁵ When closing lines are used to enclose bays, additional rules apply. A bay is defined under the Law of the Sea Convention as, “a well-marked indentation whose penetration is in such proportion to the width of its mouth as to contain land-locked waters...”⁶ “An indentation shall not, however, be regarded as a bay unless its area is as large as, or larger than, that of the semi-circle whose diameter is a line drawn across the mouth of that indentation.”⁷ Where, because of islands, the entrance to the bay has more than one mouth, the semi-circle shall be drawn on a line as long as the sum total of the lengths of the lines across the different mouths.⁸ Whether one or several closing lines are drawn, the sum total of the length of the closing line(s) may not exceed 24 nm.⁹

Straight baselines must fulfil two additional criteria: they must not depart to any appreciable extent from the general direction of the coast and the sea areas lying within the lines must be sufficiently closely linked to the land domain to be subject to the regime of internal waters.¹⁰ It is particularly important to note that, within the context of the Canadian Arctic, where straight baselines are established that have the effect of enclosing as internal waters

¹ Article 5, Law of the Sea Convention.

² Article 8(1), Law of the Sea Convention.

³ Ian Brownlie, *Principles of Public International Law* 1999 at p. 148.

⁴ Article 7(1), Law of the Sea Convention.

⁵ Article 10, Law of the Sea Convention. It is noteworthy that this closing rule does not apply in the case of an historical bay, such as Hudson Bay. In such case, however, the coastal state would still apply the rules for determining straight baselines contained in article 7 of the treaty. See article 10(6).

⁶ Article 10(2), Law of the Sea Convention.

⁷ Article 10(2), Law of the Sea Convention.

⁸ Article 10(3), Law of the Sea Convention.

⁹ Article 10(4), Law of the Sea Convention.

¹⁰ Article 7(1), Law of the Sea Convention.

areas that had not previously been considered as such, the international community retains the right of innocent passage through those waters.¹

Coastal states may adopt a territorial sea extending at each point from the baseline seaward to a breadth of no more than 12 nm.² The coastal state, subject to important caveats, may exercise sovereignty in the territorial sea, but the exercise of authority is not absolute. Coastal states may enact a broad range of laws and regulations pertaining to the territorial sea, including safety of navigation, protection of living and non-living marine resources, preservation of the environment, and customs, fiscal, immigration, and health-related regulations.³ Vessels of all states enjoy the right of innocent passage through the territorial sea.⁴ Perhaps the most important caveat for regulation in the territorial sea is that coastal state laws and regulations shall not apply to the design, construction, manning, or equipment (CDEM) of foreign ships, unless those regulations are giving effect to internationally accepted standards.⁵ This prevents coastal states from imposing varying, arbitrary, unreasonable, or discriminatory standards on transiting vessels that would hamper world shipping and undermine the interests of all states. As a balance to the limits on coastal state authority, vessels exercising innocent passage also must observe specific limits on their activities during innocent passage. Vessels conducting innocent passage shall not conduct activities that are prejudicial to the peace, good order, or security of the state.⁶ Foreign ships may not conduct any activity that does not have a direct bearing on passage.⁷ Foreign ships must comply with all laws and regulations relating to the prevention of collision at sea, and they are obligated to comply with coastal state environmental laws, so long as those laws do not relate to CDEM.⁸ At the same time, coastal states shall not hamper innocent passage.⁹ Specifically, coastal states may not impose requirements on foreign ships that have the practical effect of denying or impairing the right of innocent passage.¹⁰ Even if one accepts the Canadian straight baselines encircling the Canadian Arctic in 1967 and 1968, the international community would still enjoy the right of innocent passage through those newly-enclosed internal waters. This is because the Law of the Sea Convention provides that where the establishment of straight baselines have the effect of enclosing as

¹ Article 8(2), Law of the Sea Convention.

² Articles 3 and 4, Law of the Sea Convention.

³ Article 21(1), Law of the Sea Convention.

⁴ Article 17, Law of the Sea Convention.

⁵ Article 21(2), Law of the Sea Convention.

⁶ Article 19(1) and 19(2)(a)-(l), Law of the Sea Convention.

⁷ Article 19(2)(l), Law of the Sea Convention.

⁸ Article 21(4), Law of the Sea Convention.

⁹ Article 24, Law of the Sea Convention.

¹⁰ Article 24(1)(a), Law of the Sea Convention.

internal waters areas which had not previously been considered as such, a right of innocent passage still exists in those waters.¹

Both the scientific and legal-policy literature refers often to the Canadian “Arctic archipelago.” A geographic archipelago is an island chain, such as that encountered throughout the Northwest Passage. In the legal sense, however, there is not a Canadian (or Russian or an American) Arctic archipelago. The definition of a legal archipelago is well-settled, and the criteria for an “archipelagic State” are clearly set forth in the Convention. An “archipelagic State” is defined in Part IV of the Law of the Sea Convention as “a State constituted wholly by one or more archipelagos and may include other islands.” “Archipelago” is defined as “a group of islands, including parts of islands, interconnecting waters and other natural features which are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical, economic and political entity, or which historically have been regarded as such.”²

The ratio of the area of water to the area of land must be between 1 to 1 and 1 to 9, and the length of the straight baselines may not exceed 100 nm, or in rare circumstances, 125 nm.³ A continental State, such as the United States, may not claim the status of “archipelagic State” merely because some territory, such as the Hawaiian Islands, would, by themselves, be eligible for archipelagic status. The territory of the entire State is part of the equation in Article 46 of the treaty. There are specific rules for drawing archipelagic straight baselines.⁴ States may draw such baselines in order to join the outermost points of the outermost islands and drying reefs, provided that the enclosed area includes the main islands and meets a strict numerical ratio. If a state is unable to meet the discrete numerical ratio, it may not claim legal archipelagic status.

Under Part V of the Law of the Sea Convention, Canada has the right to exercise exclusive control and sovereign rights over all of the living and non-living resources throughout the Northwest Passage in areas extending out to 200 nm from each point extending seaward along lawfully drawn baselines.⁵ This means Ottawa controls conservation and exploitation of fishing as well as the development (or non-development) of oil and natural gas and other resources contained in those waters. Moreover, Canada may lawfully exercise jurisdiction over the preservation of the marine ecosystem and the conduct of marine scientific research in this area.⁶

¹ Article 8(2), Law of the Sea Convention

² Article 46, Law of the Sea Convention.

³ Article 47(1) and (2).

⁴ Article 47, Law of the Sea Convention.

⁵ Article 56(1)(a), Law of the Sea Convention.

⁶ Article 56(1)(b), Law of the Sea Convention.

One of the key provisions of the treaty relating to those portions of the EEZ that are at various times “ice-covered” is Article 234. The Article buttresses coastal state authority to adopt and enforce non-discriminatory laws and regulations to control vessel-source pollution in ice-covered areas of the EEZ.¹ As a result of collaboration among Russia, the United States, and Canada,² Article 234 was included as part of the bargain struck negotiating the Convention to permit coastal states some level of authority to prevent pollution from vessels. The article is directed at preserving the fragile ecology of ice-covered areas, but only within the limits of a coastal state’s EEZ, such as the Russian, American, or Canadian EEZs that extend into the Arctic. In depositing its instrument of accession to the 1978 Protocol to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73/78), Canada deposited a declaration concerning Arctic waters in which it asserted a right to “adopt and enforce non-discriminatory laws” to prevent pollution in the Canadian Arctic.³ In response, the United States filed with the Secretary-General of the IMO its understanding of Canada’s declarations, emphasizing, *inter alia*, that those laws may be enforced against foreign shipping only if they are consistent with articles 234 and 236 of the Law of the Sea Convention.⁴ On this issue, the comprehensive University of Virginia Commentary concludes that Article 234, “has no implication for any claims to sovereignty or other aspects of jurisdiction” in those areas.⁵

V. Straits Used in International Navigation

Under international law, the Northwest Passage, as well as its Eurasian counterpart, the Northeast Passage, fall within the classic definitions of a strait used for international navigation.⁶ The definition of a strait used for international navigation is quite simple—a strait connects one part of the high seas or EEZ to another part of the high seas or EEZ.⁷ There is nothing in the Law of the Sea to suggest additional tests or requirements for recognition as an international strait, so there is no authority for the idea that a strait is only a strait if it meets a certain minimum threshold of shipping traffic, a specific number of transits, a timetable or regularity of

¹ Article 234, Law of the Sea Convention.

² Roy A. Perrin III, *Crashing Through the Ice: Legal Control of the Northwest Passage*, or ‘Who Shall Be Emperor of the North’, 13 Tul. Mar. L. J. 139, 160 (Fall 1988).

³ IMO Doc. PMP/Circ.105 dated Dec. 7, 1992, *as cited in* Roach and Smith, United States Responses to Excessive Maritime Claims (2d. ed. 1996) at 456-57.

⁴ State Department telegram 349386, Nov. 18, 1993; American Embassy London telegram 20793, Nov. 18, 1993, *as cited in* Roach and Smith, United States Responses to Excessive Maritime Claims (2d. ed. 1996) at 457-58.

⁵ United Nations Convention on the Law of the Sea: A Commentary (Shabtai Rosenne and Alexander Yankov, eds., Center for Oceans Law & Policy, University of Virginia, vol. IV, 1991) at § 234.5(g).

⁶ Ian Brownlie, *Principles of Public International Law* 1999 at p. 276.

⁷ Article 37, Law of the Sea Convention.

transits, transit by certain types of vessels, or whether the vessel is accompanied or not accompanied by icebreakers. The test is geographic, not functional—if the water connects one part of the high seas or EEZ to another part of the high seas or EEZ, it is a strait.¹ Unlike innocent passage, transit passage through international straits may not be suspended by a state bordering the strait.²

All ships and aircraft enjoy the right of transit passage through international straits, and vessels and aircraft are entitled to unimpeded transit solely for the purpose of continuous and expeditious transit. Vessels and aircraft conducting a transit of the transcontinental Northwest Passage are exercising transit passage when they are within overlapping territorial seas; otherwise, those vessels and aircraft are entitled to exercise high seas freedoms throughout the Canadian EEZ. The regime of transit passage through straits used for international navigation does not in other respects affect the legal status of the waters forming the straits or the exercise by the States bordering the straits or their sovereignty or jurisdiction over such waters and their airspace, bed and subsoil.³

The areas of the Northwest Passage narrower than 24 nm, as measured from lawfully drawn baselines, fit squarely within the definition in the Law of the Sea Convention as a strait used for international navigation since the Passage connects one part of the high seas or EEZ to another part of the high seas or EEZ.⁴ Before we turn to the implications of this conclusion, including the obligations of both coastal states as well as maritime states, it is useful to cover a few additional rules that apply to straits.

There are a few additional rules that apply to transit passage through international straits. First, areas of the Northwest Passage in which the strait is more than 24 nm wide, as measured from lawfully drawn baselines, would constitute a geographic but not juridical international strait. In such cases, a corridor or route through the high seas or EEZ in that area creates an “exception” to the regime of transit passage in that complete high seas freedoms, rather than the more limited transit passage regime, would apply to those areas.⁵ The Taiwan Strait is an example of a high seas corridor running through a geographic strait, obviating the need for applying the rules of transit passage regime in those areas in which the territorial seas on each side of the strait do not overlap. Second, transit passage does not affect the legal regime in straits in which passage is regulated by “long-standing international conventions in

¹ Note that the Law of the Sea Convention does not affect additional rules for specific historic straits established under long-standing international conventions relating to such straits. See, Article 35(c), Law of the Sea Convention.

² Article 44, Law of the Sea Convention.

³ Article 34(1), Law of the Sea Convention.

⁴ Article 37, Law of the Sea Convention.

⁵ Article 36, Law of the Sea Convention.

force” that specifically relate to such straits.¹ There is no such treaty governing the Northwest Passage, but an example of such a convention is the Montreux Convention of 1936, which contains provisions governing the Bosphorus and Dardanelles, forming the Turkish Straits. Third, no right of transit passage exists through a strait that contains a route through the high seas or EEZ that is of similar convenience to the strait, so long as the alternative route meets the test with respect to navigational and hydrographical characteristics.² This last provision is unlikely to have much effect in application through the Passage, however. The entire purpose of the transiting the Northwest Passage is to take advantage of a transcontinental route that is superior to other alternatives. Even if the provision were to apply, it would not permit more than slight detours through the Passage since this special consideration still preserves the right of freedom of navigation and overflight and the alternatives must offer similar convenience. Fourth, there is a “dead end strait” exception, which applies to geographic circumstances in which high seas or EEZs connect with the territorial seas of a state by means of a strait bordered by one or more straits.³ Ships entering the state in the “cul de sac” at the end of the strait are entitled to non-suspendable innocent passage so that the port state is not “landlocked” with a territorial sea leading to nowhere.⁴ Freedom of navigation and overflight solely for the purpose of continuous and expeditious transit of a strait does not preclude passage through the strait for the purpose of entering, leaving, or returning from a state bordering the strait, subject to conditions of port entry of the state.⁵ Fifth, transit passage does not apply in straits that are formed by an island of the state bordering the strait and its mainland and where there exists seaward of the island a route through the high seas or EEZ of similar convenience with respect to navigational and hydrographical characteristics.⁶ This provision might be of value for Canada to use to make minor adjustments in the routing of particular legs through the Passage that cut between the mainland and individual islands, but it would not support a claim that had the practical effect of restricting or redirecting traffic more generally.

Ships and aircraft exercising the right of transit passage through or over a strait are required to proceed without delay.⁷ Vessels and aircraft also shall refrain from any threat or use of force

¹ Article 35(c), Law of the Sea Convention.

² Article 36, Law of the Sea Convention.

³ Article 38(1) and 45(1)(b), Law of the Sea Convention.

⁴ See, e.g., Rear Admiral William L. Schachte, Jr., *International Straits and Navigational Freedoms*, Remarks prepared for presentation at the 26th Law of the Sea Institute Annual Conference, Genoa, Italy, 22-26 June 1992, pp.12-13 and p. 18, available at: <http://www.state.gov/documents/organization/65946.pdf>. The classic example of the dead end strait is Harbor Head Passage.

⁵ Article 38(2), Law of the Sea Convention.

⁶ Article 38(1), Law of the Sea Convention. The Strait of Messina, bordered by Sicily and Calabria, Italy, is the classic example of this exception.

⁷ Article 39(1)(a), Law of the Sea Convention.

against the sovereignty, territorial integrity, or political independence of states bordering the strait. These obligations reflected in the Law of the Sea Convention replicate general duties contained in the U.N. Charter.¹ Ships and aircraft also shall refrain from activities except for those incident to normal modes of continuous and expeditions transit, unless rendered necessary by *force majeure* or by distress.² Ships have the obligation to comply with generally accepted international regulations and practices for ensuring the safety of life at sea, including the International Regulations for Preventing Collisions at Sea (COLREGs). While conducting transit passage, ships also shall comply with generally accepted international regulations and practices for the prevention, reduction, and control of pollution from ships.³ Civil aircraft are bound to adhere to Rules of the Air established by the International Civil Aviation Organization (ICAO).⁴ The ICAO Convention does not apply to state aircraft, which includes those used in military, customs and police services.⁵

Coastal states that border international straits benefit from a number of provisions that help them better manage their responsibilities and protect their natural resources. These provisions permit states bordering straits to exercise a degree of control, with the important stipulation that the rules must be in accord with international standards and applied in a manner that is non-discriminatory. First, states bordering straits may designate sea lanes and prescribe traffic separation schemes for navigation in the straits when such regulations are necessary to promote the safe passage of ships.⁶ These regulations must be in conformity with generally accepted international regulations in order to prevent straits states from imposing excessive or unreasonable requirements onto international shipping.⁷ Additionally, state vessels such as Coast Guard vessels and Navy vessels, are exempt from such regulations.⁸ Before states bordering straits may designate or prescribe regulations, however, they shall refer their proposals to the International Maritime Organization for adoption.⁹ Once the IMO has adopted the proposals and they are duly designated and publicized by the state bordering the strait, ships in

¹ Article 39(1)(b) and article 2(4), United Nations Charter.

² Article 39(1)(c), Law of the Sea Convention.

³ Article 39(2) (b), Law of the Sea Convention.

⁴ Article 39(3), Law of the Sea Convention.

⁵ Article 3, International Convention on Civil Aviation, available at: http://www.icao.int/icaonet/arch/doc/7300/7300_9ed.pdf.

⁶ Article 41(1), Law of the Sea Convention.

⁷ Article 41(3), Law of the Sea Convention.

⁸ The flag State of a ship entitled to sovereign immunity which acts in a manner contrary to such laws bears "international responsibility for any loss or damage" which results to the States bordering straits. Article 42(5), Law of the Sea Convention.

⁹ Article 41(4), Law of the Sea Convention.

transit passage have a duty to respect the sea lanes and traffic separation schemes.¹

Within some limitation, states bordering straits may adopt additional laws and regulations relating to transit passage through straits. In addition to the authority to adopt laws relating to the safety of navigation and to institute traffic separation schemes, states bordering straits have several authorities to help to protect and preserve the ocean environment. State provisions may prevent, reduce, and control pollution by giving effect to international regulations regarding “discharge of oil, oily waste and other noxious substances” in the strait.² This provision permits regulation solely of vessel discharge that already is regulated by international instruments and does not entitle the state bordering the international strait to develop regulations relating to CDEM. States bordering straits also may adopt laws and regulations relating to fishing and the stowage of fishing gear and a wide range of customs, fiscal, immigration, and sanitary laws and regulations to enhance state security and better protect the public health.³ Foreign ships exercising the right of transit passage shall comply with all of these regulations, but the regulations must not discriminate in form or in fact among foreign flagged vessels.⁴ Moreover, the application of such laws and regulations shall not have the practical effect of denying, hampering, or impairing the right of transit passage.⁵ Lastly, unlike innocent passage through territorial seas, states bordering international straits may not suspend transit passage.⁶

VI. Conclusion: Considering the Malacca Straits Model

Prior to 1982, the legal status of international straits was controversial. In one example, Malaysia and Indonesia sought to claim the Strait of Malacca as territorial waters.⁷ At the time, the United States and other maritime states including our Cold War adversary, the Soviet Union, as well as Japan and the United Kingdom, were worried that straits states may begin to try to limit tonnage through the straits, stop traffic or impose tolls for passage, or even close the straits in some extreme cases. If the waters of the strait were determined to be territorial waters, submarines could be required to surface and civil and military aircraft could be denied passage. Of course, Malaysia and Indonesia and other straits states, including Canada, ultimately accepted the careful balance of equities between straits states and the international community that

¹ Article 41(7), Law of the Sea Convention.

² Article 42(1)(b), Law of the Sea Convention.

³ Article 42(1)(c) and (d), Law of the Sea Convention.

⁴ Article 42(2) and (4), Law of the Sea Convention.

⁵ Article 42(2), Law of the Sea Convention.

⁶ Article 44, Law of the Sea Convention.

⁷ William D. Hartley, “When is a Strait International, When Territorial? No One is Quite Sure, and Therein Lies a Dispute,” *The Wall St. J.* Nov. 30, 1972 p.40.

is reflected in the Law of the Sea Convention. Leveraging the full extent of authorities for straits states in the Law of the Sea Convention, the states bordering the Straits of Malacca and Singapore continue to work through the IMO to accomplish their legitimate interests in safety, security, and environmental protection. At the same time, states regularly using the straits and international shippers both have been supportive of these efforts to make the transit safer and more efficient.

Over the last decade, in particular, the littoral strait states of Indonesia, Singapore, and Malaysia have gained international acceptance for instituting real improvement in the Straits of Malacca and Singapore. After close work among states bordering the straits, industry bodies, and maritime states, the IMO adopted amendments to refine the routeing measures and the traffic separation scheme in the Straits of Malacca and Singapore to improve vessel safety.¹

In 2005, 31 user states and three Straits states met in Jakarta to develop further improvements in the management of the Straits. The “Jakarta Initiative” launched a program of regular meetings and increased cooperation among littoral straits states, user states, the international shipping industry and non-governmental organizations.² The three Straits states pledged to increase cooperation and share information, and the user states expressed a willingness to assist the straits states in providing technical support and building capacity for ensuring the safety, security, and environmental protection of the straits. The Straits states will cooperate more closely to increase maritime patrols through the Straits and the user states are focusing on providing training and equipment. The agreement in Jakarta was groundbreaking in developing a framework for cooperation among stakeholders in the Strait of Malacca and Singapore. A follow-up meeting was held in Kuala Lumpur.³

Throughout this process, the IMO established a mandatory ship reporting system in the straits for vessels 300 tons and above.⁴ The IMO, the user states, and the straits states have worked together to enhance maritime domain awareness in the straits. One of the primary components of this effort is the Marine Electronic Highway (MEH) project. The MEH project partners the strait states with assistance from the United States and the United Kingdom,

¹ “Routeing Measures other than Traffic Separation Schemes,” SN/Circ.198, 26 May 1998, available at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D8752/198.PDF.

² Kuala Lumpur Statement on Enhancement on Safety, Security and Environmental Protection in the Straits of Malacca and Singapore, September 20, 2006, available at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D15677/kualalumpurstatement.pdf.

³ See UN doc. A/61/584, Nov. 17, 2006 for a report of the Kuala Lumpur meeting..

⁴ “Mandatory Ship Reporting Systems,” SN/Circ.201, 26 May 1988, http://www.imo.org/includes/blastDataOnly.asp/data_id%3D8753/201.PDF. Warships and other government vessels normally comply with such rules, so long as they are consistent with the Law of the Sea Convention. Articles 29-32, Law of the Sea Convention.

under the auspices of the IMO.¹ It couples emerging information technology and electronic charts with real-time communications to promote safer navigation and protection of the marine environment.² The project is focused on provision of real-time navigation information, tide and current data, and establishing Automatic Identification System (AIS) shore stations. During one of the first demonstrations, more than 60 oil tankers were outfitted with an advanced Electronic Chart and Display and Information System (ECDIS).³

The work of the IMO in the straits is directly promoting sustainable development and environmental preservation. The IMO submitted the MEH project as a signature accomplishment for strengthening partnerships in support of Agenda 21, the capstone document adopted at the United Nations Conference on Environment and Development, also known as the "Earth Summit," in 1992.⁴ Along with the Rio Declaration, Agenda 21 was one of the five major agreements to be adopted by the 178 countries represented in Rio de Janeiro.⁵ In 2002, the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa, brought together more than 100 heads of state and nearly 25,000 governmental, business, and NGO representatives at the Sandton Convention Centre to move toward a strategy for implementing Agenda 21.⁶

The multilateral approach, which is successfully being applied in one of the busiest international straits on the planet, is an ideal model for the Northwest Passage, the world's longest and perhaps most environmentally sensitive international strait. It has been more than a decade since Oran Young asked whether Arctic issues generally would be addressed within local geographic context, posing a distinct set of problems and opportunities, or whether instead the region was peripheral to larger global politics.

¹ Marine Electronic Highway in the Straits of Malacca and Singapore, available at: <http://webapps01.un.org/dsd/partnerships/public/partnerships/131.html>.

² Koji Sekimizu, The Marine Electronic Highway in the Straits of Malacca and Singapore, *Tropic Coasts* (July 2001) at pp. 24-31, available at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D3668/marineelectronichighwayarticle.pdf. The systems utilizes the Electronic Navigation Chart – Electronic Chart Display and Information System (ENC-ECDIS). The original ECDIS testbed was conducted at Woods Hole Oceanographic Institution nearly fifteen years ago.

³ Electronic Highway Project Takes Major Step Forward," IMO News, no. 2 (2002), at p. 35, available at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D5716/issue2.pdf.

⁴ International Maritime Organization submission, Marine Electronic Highway in the Straits of Malacca, Partnerships/initiative to Strengthen Implementation of Agenda 21, available at: http://www.un.org/js/summit/html/sustainable_dev/p2_managing_resources/marine_electronic_imo_0207.pdf.

⁵ Agenda 21 is a blockbuster 40-chapter volume spanning 800-pages of goals and potential programs outlining sustainable development for the world. The full text of Agenda 21 is available on the Internet website of the UN Department of Social and Economic Affairs (<http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm>) (last visited Nov. 19, 2004).

⁶ Paul Wapner, World Summit on Sustainable Development: Toward a Post Jo-burg Environmentalism, 3 *GLOBAL ENV'T'L. POL.* 1, 1-2 (Feb. 2003).

Canada, he suggested, was more inclined to view the Arctic as a distinctive outpost; the United States, by contrast, as a superpower with global interests, could be expected to respond sceptically to arguments emphasizing the distinctiveness of the Arctic.¹ The answer, of course, is that the Arctic has special geographic, ecological, and cultural features that make it distinct. At the same time, no area is disconnected in the contemporary age, and regional approaches do not unfold in a vacuum. In the era of globalization, the multilateral successes in the Straits of Malacca and Singapore provide a framework for promoting Canada's goals of preserving the fragile Arctic environment, maintaining maritime domain awareness in Arctic waters and exercising appropriate jurisdiction and oversight over the strait. This approach would open the door to widespread international recognition of Canada's status as a strait state and attract support for appropriate measures to protect the Arctic ecosystem, ensure Canadian security and sovereignty, and promote safe navigation through designated routes through the vast northern expanse. Doing so would achieve a major success for Ottawa and would offer the best means for Canada to achieve its goal of obtaining widespread international acceptance of Canadian prerogatives in the maritime Arctic.

¹ Oran R. Young, *The Arctic: Distinctive Region or Policy Periphery?* In *Arctic Politics: Conflict and Cooperation in the Circumpolar North* (1992) at pp. 231-234.

Chapter 4

Iceland - A Small State in High Seas

Tómas Brynjólfsson

Abstract

Increased economic activity in the Arctic, due to better access and pressure for more oil and gas resources, will force the region higher on the international agenda in the 21st century. Much of the increased Arctic traffic related to the areas economic development will traverse the seas around Iceland; a country that lost its only permanent military forces with the departure of the US defence force in September 2006. Iceland relies, therefore, primarily on a small but growing coast guard to monitor the seas around the island. Iceland will therefore have to rely on co-operation with its North Atlantic neighbours to fully secure its vast Exclusive Economic Zone. As the Arctic's importance grows for the West's energy and economic security, increased co-operation in this field will not only benefit Iceland,. Arctic security should therefore be a common responsibility for the North Atlantic states and NATO.

Résumé

Une activité économique accrue dans l'Arctique, en raison d'un accès facilité et de pressions pour extraire de nouvelles ressources de pétrole et de gaz, portera la région au haut de la liste du programme international du ^{xxi} siècle. Une grande partie de l'activité maritime de l'Arctique lié au développement économique de la région traversera les mers entourant l'Islande, un pays qui a perdu ses forces militaires permanentes avec le départ des forces de défense américaines en septembre 2006. Pour surveiller les mers qui l'entourent, l'Islande dépend principalement d'une modeste et grandissante garde côtière, et devra donc se fier à la coopération avec ses voisins de l'Atlantique Nord pour protéger sa vaste zone économique exclusive. Cependant, une coopération accrue dans ce domaine ne profitera pas seulement à l'Islande, alors que croît l'importance de l'Arctique pour l'énergie et la sécurité économique de l'Ouest. La sécurité de l'Arctique devrait donc être une responsabilité partagée par les États souverains de l'Atlantique Nord et l'OTAN.

Economic, environmental, and geopolitical realities of the 21st century are driving the Arctic higher on the international agenda. In the near future, the area will play an increasingly important role for the West's energy security and development of global trade, through growing oil and gas production, and increased shipping in the Arctic.

Much of the increased economic activity in the Arctic will be transported through the Exclusive Economic Zone (EEZ) of Iceland, the only state for which the Arctic is not a peripheral region. Iceland's strategic environment is, therefore, in state of flux that could lead to profitable economic opportunities and great environmental and political challenges. At the same time, the country's defences and the security in the North Atlantic have been downgraded, as the United States has ended its military presence in Iceland.

Decreased Defences

In March of 2006, in a midnight phone call, a US Under-Secretary of State announced that the United States would pull out its forces from Iceland within six months. A country of only 300,000 people, whose only armed personnel are a couple of dozen policemen and a small, but growing, coast guard Iceland's central pillars of its defence policy for the past 55 years have been its membership in NATO, and the stationing of US military personnel on its soil in accordance with the 1951 Bilateral Defence Agreement between the two countries. The closing of the US base in Iceland also signalled the end of air defences in Iceland's airspace, the largest part of NATO's common North Atlantic airspace.

Even though the decision by the US government to withdraw its forces from Iceland was not completely unexpected, the short notice given, and the manner in which the announcement was made, have affected the security of the North Atlantic and the Arctic region as well as the relationship between the two countries. As Iceland's Minister for Justice, the island's main authority on defence issues, stated in August 2006, "the manner in which they [the United States] leave, politically, could affect the way they would be welcomed back".¹ A new agreement signed between the two states in September 2006 might, however, lead to the renewal of this relationship.

Iceland started to realize in earnest the Arctic's strategic importance in the run up to its chairmanship of the Arctic Council in 2002-2004. Iceland's increased interest in the area is a consequence of the impact that global warming will have on the economic utilization of the High-North in the foreseeable future. In this respect, mainly two issues are at stake.

The Arctic and Energy Security

Firstly, in the year 2000 the US geological survey estimated that about a quarter of the world's undiscovered petroleum reserves

¹ American pullout leaves Iceland defenceless, David Rennie, the Independent, London, United Kingdom.

were located in the Arctic basin. This makes the High-North the third most important energy region in the world after the Middle East and Central Asia. The diminishing sea ice cover in the Arctic, insecurity in the Middle East, higher hydrocarbon prices, and technological advances have made oil and gas production in the High-North commercially feasible and politically sought after. Much of this oil and gas will be produced in the Barents Sea region and shipped across the North Atlantic to the United States.

It is estimated that by the year 2015, the United States will import about 15 million tons of oil from Norway and 90 million tons of oil from Russia. Much of this will be shipped through the Icelandic EEZ in enormous supertankers. Moreover, *Statoil*, the Norwegian State oil and gas company, plans to ship 40% of its production from the new gas field at Hammerfest to the United States.

New Shipping Routes

Secondly, the decreased ice-cover of the Arctic region, and the demand for larger tanker and container ships, makes shipping through Arctic waters, between Asia on one hand and Europe and the east coast of North America on the other, ever more feasible. The Arctic Climate Impact Assessment states, for example, that "the navigation season for the Northern Sea Route [over Siberia] is projected to increase from the current 20-30 days per year to 90-100 days by 2080". Moreover, this development might be occurring more rapidly than previously thought. For example, the Arctic sea ice cover decreased year-on-year by 14% in the summer of 2006. This is 30 times more reduction than during the previous year.

These new transportation routes, be they the North West Passage, the Northern Sea Route, or routes directly over the Arctic, may in the future replace the current routes through the Panama and Suez canals. Sailing through the Arctic would shorten the voyage between Europe to Asia by thousands of miles compared with current sailing routes through canals. The savings would be even greater for the largest ships that have to sail around the southern shores of Africa and South America.

It is clear that a large portion of the increased shipping activity in the Arctic and the oil and gas transportation from the Barents region to North America will have to go through the Icelandic Exclusive Economic Zone. This has already started. During the first six months of 2006, 61 giant oil tankers sailed through the Icelandic EEZ, compared with 17 for the whole of 2005. It has been estimated that by the year 2014, over one thousand super-tankers will sail through the Icelandic EEZ each year.

This increased economic activity may greatly affect the future economic development of Iceland. The government is actively preparing for these changes and the future benefits they might entail.

Increased Challenges

The opportunities brought to Iceland by increased economic activity in the Arctic are, however, accompanied by numerous challenges, especially in light of the changing relationship with the United States. In general, the increased traffic gives rise to three main challenges.

Firstly, the possibility of an environmental catastrophe greatly increases. This is a matter of highest national interest for Iceland as the fishing sector accounts for over half of the country's merchandise exports. A shipwreck or a terrorist attack near spawning grounds could, therefore, lead to a near collapse of the Icelandic economy. For that reason, the protection of the Arctic environment is of utmost importance for Iceland. This has led the government to emphasise, for example, environmental research within the framework of the Arctic Council, and to accept the Canadian regime for the control of the Northwest Passage.¹

Secondly, the Icelandic coast guard is not able to respond fully to the search and rescue needs of the increased traffic within its EEZ. As a small nation with a vast maritime area, Iceland has always relied on the United States for assistance with its search and rescue operations. For more than 35 years, the US stationed in Iceland a squadron of advanced search and rescue helicopters--which saved over 300 people in the period--as well as air-to-air refuelling airplanes. As soon as the Icelandic government learned of the unilateral decision by the United States to withdraw all of its forces, the strengthening of the coast guard's rescue capability became a very high priority. Iceland will, however, not be able to completely fill the gap that the US left this September.

The only way in which Iceland can fully respond to the challenges posed by the US decision, and the increased economic development of the Arctic is by increasing its co-operation on search and rescue matters with other Arctic and North Atlantic states. The Icelandic Minister of Justice, who is responsible for the coast guard, has been promoting increased cooperation in this field along with a number of influential parliamentarians. Among other things, the Minister has said that Iceland should look into joining the co-operation agreement on rescue matters from 1999, between the United States, Canada and the United Kingdom. This position was supported by the September 2006 agreement between Iceland and the United States on the countries' future defence cooperation. Iceland has also started negotiations with Norway and Denmark on increased cooperation regarding peacetime monitoring of the North and its increased economic activity.

¹ The Northwest Passage in Context, Andrea Charron, the Canadian Military Journal, winter 2005-2006, p. 46.

The third main challenge posed to Iceland is the problem of maritime security, including the threat of terrorism. As a nation without armed forces, Iceland has to rely on assistance from its allies for defence of its territory and security in its waters. Even though the United States believes that it does not have an interest in stationing troops in Iceland, other Arctic states seem to think that the rapidly changing situation in the Arctic demands continued vigilance.

The Russian, Norwegian, and Canadian governments have announced increased investments in their fleets and military installations in the Arctic, both to secure the sovereignty of their sea routes, and to guard energy facilities and shipping. Moreover, the French navy expects to increase its presence in the North after the US abandons its positions in Iceland, in order to prevent a security vacuum forming in the North. It is also important to remember that operations in the Arctic are much more difficult than operations in calmer and warmer seas. Therefore, France's military needs to gain experience in the Arctic environment if it intends to help guarantee Iceland's security.

Conclusions

It is clear that the Arctic is not a static strategic environment. Its growing importance for the West's energy security and international trade will push it even higher on the international agenda in coming years. A rush to the north by states trying to gain the most from these developments might even destabilize the area. These developments will greatly influence Iceland's security, and the West's energy and economic security. Iceland needs, therefore, to strive for a sustainable utilization of the Arctic that neither negates the possible economic advantages of increased economic activity, nor threatens its fragile marine ecology.

As a small nation with a vast maritime area, Iceland needs to co-operate with its neighbours and allies to be able to guarantee the country's security and the safety of the maritime traffic within its EEZ. Therefore, Iceland needs to invest further in its own security apparatus, forge new and strong ties with its neighbours, and keep the Arctic, and its sustainable use, high on the international agenda.

Chapter 5

Four Selected Intrusion Scenarios

Gary Rice

Abstract

The hypothetical scenarios in this paper encompass a range of non war-fighting situations that might occur in the Canadian North and which would require varying degrees of response by differing levels of government, including the conduct of related military operations. Their purpose is to provide planners with tools that will aid them in the identification of shortcomings and gaps in existing military capability and those new ones that may be required in the future. Each of them, excepting one which is set in the Province of Manitoba at 58°43'N, take place above 60°N. They include situations involving rescue and evacuation, terrorist attack, sovereignty challenge, civil unrest, and domestic sabotage.

Résumé

Les scénarios hypothétiques figurant dans le présent document englobent un éventail de situations qui pourraient se produire dans le Nord canadien et qui exigeraient la prise de diverses mesures par différents échelons de gouvernement, dont la conduite d'opérations militaires connexes. Elles ont pour objectif de fournir aux planificateurs les outils qui leur permettront de cerner les lacunes et les défauts des capacités militaires actuelles et celles qui pourraient s'avérer nécessaires dans l'avenir. Chacune d'entre elles, à l'exception de celle qui se produit dans la province du Manitoba à 58 degrés 43 minutes Nord, surviennent au nord du 60° parallèle. Elles englobent des situations de sauvetage et d'évacuation, un attentat terroriste, une atteinte à la souveraineté, une agitation civile et un sabotage intérieur.

Introduction

In these early decades of the 21st century, Canada does not have the luxury of prolonged time to create new military capabilities. Each of the CF's nascent commands will initially have to work with what it has. They will need to adjust to changing conditions to field the optimal capabilities as they strive to develop new ideas through service-centric as well as "joint" concept development and experimentation, to ensure that our future armed forces will be relevant and credible instruments of national power able to protect the nation's interests.

The fashioning of scenarios provides a benign planning environment in which to study these new ideas. Used as planning tools scenarios allow users to develop concepts that are service-

centric, as well as concepts that fall within a common, joint frame of reference. In turn, this allows policy developers to collectively decide upon future single service and joint requirements, before developing actual capabilities. In sum, scenarios provide a common set of intellectual tools that can be used for subsequent military analysis.

Developing joint, in addition to service-centric, military capabilities marks an important shift in perspective. Instead of post facto merging of unconnected maritime, land, and air capabilities after they have already been developed, planners can explore joint capabilities from the beginning of the force development process. The resulting vision of jointness, as the coherent integration of forces before, rather than after the fact, permits top decision makers to forestall, rather than reconcile and resolve, interoperability problems, by building capabilities that are joint from the very beginning.

Scenario Prescripts

The scenarios that follow encompass a theorized range of non war-fighting situations that might occur in the Canadian north. They would require varying degrees of response by differing levels of government, and would include the conduct of related military operations. They are not intended to be all-inclusive but to be used as planning tools to aid in identifying shortcomings and gaps in existing military capability, and to determine those new ones that we may require in the future.

Each of these notional scenarios, excepting one set in the Province of Manitoba at 58°43'N, takes place above 60°N. Collectively, they focus on problems that might one day face our armed forces and other responsible governments, ministries, agencies, and organizations.

Underlying each scenario is the assumption that whatever response is required will be commensurate with the actual capabilities existing at the time. These would include those inherent in projects already advanced to the definition or implementation stages of the procurement process. Examples would include: C-130J Hercules tactical airlift aircraft;¹ C-17 Globemaster III strategic airlift aircraft;² Joint Support Ship;³ CH-47 Chinook helicopters.¹

¹. Roy Braybrook. *"Getting There Fastest with the Mostest."* *Armada International Supplement*. (May, 2006), p. 10. "As announced in November 2005, Canada intends to purchase at least 16 C-130Js to replace 19 old C-130Es. A contract is due to be signed in the second quarter of 2007, with deliveries to begin in the second quarter of 2010."

². Public Works and Government Services Canada. *Strategic Airlift Capability Project (ACP-S) Boeing C-17 Advance Contract Award Notice (ACAN)*. "The Department of National Defence has a requirement to procure four (4) new Strategic Airlift Aircraft. Delivery is expected to commence no later than 18 months after contract award. (Ottawa, ON., July 5, 2006).

³. *Canada Issues RFP for CDN\$ 2.9B "Joint Support Ship" Project*. "As part of its spate of military modernization announcements, the Canadian government issued an RFP and began

Scenarios Overview And Reacting Organizations

SCENARIO	REACTION BY ²		
	Canadian Forces	Federal Government	Provincial Government
	CANCOM CANSOFCOM	Ministry Agency Other	
1. Rescue and evacuation. February 2010. A foreign commercial cargo/passenger aircraft makes an emergency landing.	JTFN JTFA JNBC	DCI DND DTP HC PCO PSEP	NU
2. Terrorist attack. August 2008. A non-state terrorist group smuggles a nuclear device into a northern port.	JTFN JTFC JNBC	CSIS DND HC PCO PSEP	MB NU ON QC
3. Sovereignty challenge. July 2009. A foreign nation with the intent to transit the North West Passage without prior notice.	JTFN JTFA	CCG DFAIT DND PCO	NWT NU
4. Civil unrest and domestic sabotage. July 2013. A radical separatist group barricades a highway and sabotages a gas pipe-line and oil and gas wells.	JTFN CSOR	CSIS DND PCO PSEP RCMP	AB BC NWT YT

Details of all current projects in these categories are contained in the Treasury Board of Canada Secretariat's Report on Plans and Priorities 2006-2007 for National Defence.¹

the process to define and build 3 "Joint Support Ships. Delivery of the first ship is targeted for 2012." *Defense Industry Daily*. June 30, 2006.

¹. Public Works and Government Services Canada. *Medium to Heavy Lift Helicopter (MHLH) – Boeing CH-47 Chinook Advance Contract Award Notice (ACAN)*. "The Department of National Defence has a requirement to procure a minimum of sixteen new MHLHs. Delivery is expected to commence no later than 36 months after contract award." (Ottawa, ON., July 5, 2006).

² Acronyms: JTFN – Joint Task Force North; JTFA – Joint Task Force Atlantic; JNBC – Joint Nuclear, Biological, Chemical; JTFC – Joint Task Force Central; CSOR – Canadian Special Operations Regiment; PSEP – Public Safety and Emergency Preparedness Canada; PCO – Privy Council Office; CSIS – Canadian Security and Intelligence Service; CCG – Canadian Coast Guard; DFAID – Department of Foreign Affairs and International Trade; DCI – Department of Citizenship and Immigration; DTP – Department of Transport; HC – Health Canada

Scenario One Rescue And Evacuation

Background

The Government of Canada has historically proclaimed sovereignty over its Arctic territory and waters, and has periodically reiterated these claims. The Mulroney government's 1987 White Paper on Defence, *Challenge and Commitment*, discussed the need for capabilities in Canada's "Three Oceans." In 2000, the Government of Canada released *The Northern Dimension of Canada's Foreign Policy* (NDFP)². In the October 2004 Speech from the Throne, Prime Minister Martin announced a "northern strategy" that would, among other things, "protect the northern environment and Canada's sovereignty and security."³ In April 2005, the Government of Canada released its *International Policy Statement* (IPS), which placed much greater emphasis on the Arctic region and sovereignty concerns than the 1995 *Canada in the World: Canadian Foreign Policy Review*. Arctic sovereignty is discussed in the "Overview," "Diplomacy," and "Defence" sections of the IPS.⁴

In 2006, Prime Minister Harper stated his government's intention to increase military spending in the Far North, and to build a deep-sea port to exercise control over the area in light of wide interest in the area's vast natural resources. "It's no exaggeration to say that the need to assert our sovereignty and take action to protect our territorial integrity in the Arctic has never been more urgent," the Prime Minister said during a trip to Nunavut.⁵

With the end of the Cold War, the airspace over Russia and China has opened up to commercial traffic. Polar routes offer an alternative to existing routes between North America and Asia, connecting eastern and interior regions of North America to Asian cities via the north-polar Region. These airways provide an attractive shortcut to Asia, which can open new air travel markets, and also make service to existing city pairs more efficient through reduced fuel consumption and associated emissions.⁶

¹.Treasury Board of Canada Secretariat. *Report on Plans and Priorities 2006-2007 National Defence. Table 9a: Details on Project Spending - Capital Equipment Program*. (Ottawa, ON., September 26, 2006).

².Foreign Affairs Canada, *The Northern Dimension of Canada's Foreign Policy*, 2000.

³.Government of Canada. *Speech from the Throne*. October 5, 2004.

⁴.Government of Canada.. *"Canada's International Policy Statement-A Role of Pride and Influence in the World."* An overview of Canada's role in international affairs and the main trends affecting our place in the world, and including detailed chapters on our diplomatic, defence, development and commercial policies. (Ottawa, ON, April 19 2005).

⁵.Dene Moore, *"Canadian military will defend claim over Arctic waters: prime minister,"* Speech by Prime Minister, Stephen Harper, in the Nunavut legislature at Iqaluit, during a visit to the northern territories, *Canadian Press*, Monday, August 14, 2006.

⁶.Transport Canada. *Economic Analysis Policy*. (Ottawa, ON.,). September 28, 2005.

The main cross-polar route, known as Polar 1, generally offers efficient routing from West Coast cities such as Vancouver and Los Angeles to destinations on the Indian subcontinent. The other main cross-polar routes, Polar 2, 3, and 4, generally are for flights connecting cities in eastern and central North America with destinations in China and East Asia. The governments of Russia, China, Canada, and the United States are continuing to develop the polar route system through the ongoing activities of the *Russian-American Coordinating Group for Air Traffic*. Support from the airlines through the *International Air Transport Association* has been very important and will continue to be critical to the future development of the polar route system.

Recently, NAV CANADA, the country's provider of civil air navigation services, prepared a feasibility study, which identified 33 potential city pairs that could benefit from polar routes. Some examples of time-savings in minutes and dollars per flight identified in the NavCanada study include: Boston - Hong Kong 138 minutes and \$33,000. New York - Singapore 209 minutes and \$44,000. Vancouver - Beijing 108 minutes and \$33,000.¹

Transport Canada predicts that Polar Routes traffic will continue to grow at above average rates, from about 228,000 flights in 2004 to 1,768,000 by the year 2019, stimulated by the availability of modern aircraft with 6,000 to 9,000 mile ranges; and by the continuing development of the polar route system through the ongoing activities of the *Russian-American Coordinating Group for Air Traffic*.²

In recent years, concern has increased about the use of biologic materials as agents of terrorism. However, some of these same agents are often necessary tools in clinical and research microbiology laboratories. Referred to as "select agents," these types of microorganisms, biological agents, or biological toxins have also been deemed to be major threats to public health and safety because they could be used as agents of bio terrorism. One such select agent is *Mycobacterium tuberculosis*.

Scenario

February 2010. At 3:40 a.m. the Captain of a *China Star Airlines* A380-800C11 passenger/cargo flight en route via the longitudinal polar route from Boston to Hong Kong, with 347 passenger and 11 pallets of mixed cargo aboard, has detected an on-board problem, and been advised to put down at Qausuittuq (Resolute Bay) in Nunavut. The temperature is -30°C.

On landing, several of the aircraft's tires blow as it careens off the end of the 6,500 foot gravel strip. No fires occur, and no fatalities result. But more than 127 of the lightly garbed passengers,

¹.ibid.

².ibid.

many with serious fractures and internal injuries incurred during their hasty escape from the aircraft, are seen to be wandering around in a daze, lying about in pain on the snow beside the runway, making their way toward the airport terminal building, and huddling together for warmth in small scattered groups. The plane's onboard cargo containers have shifted. The hamlet's RCMP Detachment and the airport's basic rescue capability are overwhelmed. The Resolute Health Centre (Nursing Station) in Resolute Bay is two kilometres away. The nearest hospital is located 1,550 kilometres away, at Iqaluit.

At 4:25 a.m. one cargo container is found broken open and its contents ejected onto the snow. One of the scattered cardboard boxes is seen to be damaged. On inspecting the scene an inquisitive cargo handler observes that the legible portion of its torn "Shipper's Declaration for Dangerous Goods¹ reads: "Infectious substance, 6.2 5 X 5 ml 602, 2814 affecting humans (25 ml total), (Mycobacterium tuberculosis), Dry ice 9 III 4 kg 904 1845 packed in a single cardboard box."

Suspicious about what he has come upon, he places the package back where he found it, uses his cell phone to report his findings to his boss in the airport's cargo handling area, and goes about his business.

The RCMP NCO at the scene sends an urgent, high priority message for assistance to his headquarters at Nunavut (V Division).

Scenario Two Terrorist Attack

Background

Located on the South Western shore of Hudson Bay at the mouth of the Churchill River, the northern transportation hub of Churchill, Manitoba is Canada's only inland seaport with access to the Arctic Ocean. Churchill is home to about 1,000 permanent residents. Another 9,000 people live in the surrounding area. It lies 966 air kilometres from Winnipeg, and 2,575 nautical miles from Halifax. The town's airport is located 5.56 km east southeast at an elevation of 94 feet. It has one 5,000 foot gravel runway and one 9,200 foot asphalt runway.

The Churchill Regional Health Authority provides services to much of Northern Manitoba and Nunavut Territory and the Northern Medical Unit of the University of Manitoba provides resident doctors, as well as visiting specialists. There is an influx of tourists in July

¹. *Shipper's Declaration for Dangerous Goods (Shipper's Declaration)* - an IATA-defined and mandated form which must accompany each shipment of dangerous goods; contains information which describes the dangerous goods; is helpful to persons who handle the shipment; must be completed by the shipper.

and August, when thousands of Beluga white whales move into the warmer waters of the Churchill River.

Churchill is linked by land to the rest of North America only by the Hudson Bay Railway (HBRY) owned by *Omnitrax*, an American transportation company based in Denver, Colorado. It is the northern terminus for the mid-continent trade corridor, and a vital transportation link, providing service to Northern Manitoba's important, but remote, resource-based industries, as well as a link in the supply chain to the communities in the Kivalliq region of Nunavut. It has six miles of track at Churchill for railcar unloading and equipment storage by its sister company, the Port of Churchill, the northern terminus of the railway.

The Port is a vital link in the transshipment of petroleum products and goods of all kinds to the communities in the Nunavut Territory. The Port offers four deep-sea berths for the loading and unloading of grain, bulk commodities, general cargo, and tanker vessels. The petroleum terminal provides storage for 50 million litres, and rail and dockside distribution systems for various petroleum products, including gasoline, diesel, heating oil, aviation gasoline, and jet fuel. The storage capacity of its dockside grain elevator is 140,000 MT. Close coordination with the HBRY allows efficient access to all North American points through a connection with the Canadian National railway system.

The Port's shipping season runs from July to November. It is able to accommodate *Panamax* class vessels up to 60,000 tonnes capacities. Earlier or later scheduling is available by using ice-class vessels or icebreakers.

Scenario

Since the 1991 collapse of the Soviet Union, the United States and Russia have removed nearly all their tactical nuclear weapons from overseas deployment. However, there has been continued speculation that some number of Soviet "suitcase bombs" (small portable nuclear weapons) remain unaccounted for, and unconfirmed reports suggest that they have been obtained by al Qaeda. Security weaknesses have been also identified at nuclear weapons laboratories, and other installations in both Russia and the United States. Further, the security of India and Pakistan's embryonic nuclear arsenals is uncertain, as is the question of whether nuclear weapons in these states are secured by Permissive Action Link (PAL) systems (coded, electronic locks).

Although the overall chance of al-Qaeda detonating a nuclear explosive appears to be low, the consequences of even a relatively low-yield single nuclear explosion of any size in an urban area would be catastrophic, causing an enormous number of casualties. A severe earthquake would provide some comparison of the level of damage to be expected from the blast of a nuclear

explosion, but it would not capture the immense number of burns and radiation injuries that would result. Recovery from a nuclear explosion would be long and difficult. Financial impacts would be severe. Emotional consequences for those most immediately and indirectly affected would be profound. No one would feel safe.

August 21, 2008, 2:00 a.m.: At Churchill, Manitoba the local weather is clear: temperature 8.7°, visibility 24.1 km, wind direction 180 degrees, wind speed 19 km/hr.

The Murmansk-Churchill Arctic Bridge between Churchill and the port of Murmansk¹ is in full operation. The voyage from Murmansk to Churchill is only eight days and Russian container ships arrive daily. Nine days before, on August 12, the Russian Arctic container vessel, *Norsk Nova*, departed from Murmansk. Four days out of Churchill, on August 16, its Captain, in compliance with Transport Canada's regulations, forwarded the required details of his cargo and his route.

Since it is not classified as a major port, Churchill has no radiation detection devices for screening containers for it is reasoned that, compared to ports such as Halifax, and Vancouver, such a large investment at the low volume port of Churchill would yield little in return. The government's routine target and risk assessment process for identifying containers to be checked concluded that the owner of the vessel was a trusted shipper.

Shortly after its arrival at 8:00 p.m. on August 19, the Canada Border Services Agency (CBSA) staff at Churchill carried out only a pro forma inspection of the ship and its cargo.

By 9:00 p.m. the Captain had received the OK to unload. By midnight the ship's cargo of containers were safely secured aboard the rail cars on the HBRW siding. At 1:20 a.m. on August 20, with his ship refuelled, the Captain headed his ship back out to sea, and set a return course to Murmansk.

Three weeks before, on July 31, a Chechen terrorist cell affiliated with al Qaeda bribed the drug-addicted and poorly paid commander of a badly secured storage unit at the Sevmorput naval shipyard near Murmansk, and received an early model of a trunk-size, man-portable, low yield nuclear device (a "suitcase bomb") which had been recently rebuilt with new radioactive elements whose "half-life" made it operable for at least four months. It was not equipped with a modern electronic lock.

The theft was not discovered by the Russian Federal Security Service (FSB), and the International Atomic Energy Agency was not alerted to what had taken place. The terrorist group's plan was to surreptitiously transfer the stolen device to fellow travellers in the United States by concealing it in a cargo container earmarked for transshipment to Chicago via the HBRY and its interconnected Canadian and American railways.

¹ Government of Manitoba. *"Premier Signs Letter of Intent to Further Develop Arctic Bridge."* News Release February 15, 2002.

For reasons unknown, however, the device spontaneously detonated at 2:00 a.m., between the grain elevators and the “tank farm.” Measured from its epicentre at the Port of Churchill’s railway siding the immediate damage inflicted by the 1-kiloton ground level explosion is significant.

Fireball. All matter within the 150-metre diameter fireball was vaporized.

Blast. Out to 500 metres from the explosion the blast wave over pressure of 5 pounds per square inch, followed by winds of around 150 miles per hour, destroyed all wood-frame buildings, and caused severe damage to brick buildings. Destruction and damage of the power-grid nodes in the vicinity of the port caused widespread power outages throughout the area. In addition to the blast effects, the electromagnetic pulse (EMP) from the explosion destroyed most electronic equipment in the vicinity. Containers from a cargo ship in the port were scattered at high velocity. Two ships, including a crude-oil tanker waiting off loading, suffered hull ruptures at the waterline on the side facing the explosion. Oil from the tanker began to flow rapidly into the harbour and is ablaze.

Heat. Out to about 600 metres, the fireball energy in infrared, visible, and ultraviolet wavelengths has burned exposed skin, and charred or ignited flammable materials.

Radiation. Out to around 1,100 metres, all persons in the open receive an immediate neutron and gamma ray dose of 500¹ rem, (the dose that will prove fatal within 30 days to about half the people receiving it)².

Fallout. A radiation dose of 500 rem will be received by all unprotected persons who remain for over 48-hours in the three square kilometres downwind elliptical area exposed to radioactive fallout in the form of deposited fission products and neutron-activation products.

Scenario Three Sovereignty Challenge

Background

The Canadian government’s most recent policy on the north was emphasized by Prime Minister Stephen Harper’s government in 2006, when it stated its intention to increase military spending in the Far North and build a deep-sea port to assert control over the area in light of wide interest in the area’s vast natural resources.³ At

¹ Roentgen Equivalent Man (rem). A unit of equivalent dose, “rem” relates the absorbed dose in human tissue to the effective biological damage of the radiation

² Median lethal dose (LD50) Statistically derived dose of a chemical or physical agent (radiation) expected to kill 50% of organisms in a given population.

³ Dene Moore, “Canadian military will defend claim over Arctic waters: prime minister,” Speech by Prime Minister, Stephen Harper, in the Nunavut legislature at Iqaluit, during a visit to the northern territories, *Canadian Press*, Monday, August 14, 2006.

the time, Mr. Harper said: "It's no exaggeration to say that the need to assert our sovereignty and take action to protect our territorial integrity in the Arctic has never been more urgent."¹

The strategic potential of the Arctic was recognized in 1958, when the first nuclear powered ship, *USS Nautilus SSN-571* completed the world's initial submerged transpolar voyage. After an unsuccessful attempt in 1957 to get to the North Pole from the Atlantic side, *Nautilus* tried again, this time sailing from Pearl Harbor on July 28, and successfully arriving in Portland, England, on August 12. The *Nautilus* dived under the ice near Point Barrow, Alaska, reached the geographic North Pole on August 3 and surfaced in the Greenland Sea, after steaming 1,590 nautical miles under the ice in 96 hours.²

Submarine transits, which are not dependent on channels free of ice, pose a particular problem. It is widely known, though infrequently acknowledged, that submarines from several countries often travel through the Arctic archipelago under the ice. Arguably, it works in Canada's favour that submarines transiting the passage do not announce their presence.

However, some evidence of a sense of legal entitlement is generally considered essential before a country's actions can contribute to creating a right under international law. Neither the United States nor the European Union (EU) recognizes Canada's sovereignty over the Northwest Passage. In the past both the US and France, an EU member nation, have reportedly sent their submarines on unannounced underwater Arctic voyages; ostensibly to assert that the waters are international.

France currently has in operation four nuclear-powered ballistic missile submarines (SSBNs) of three classes: two of the new *Triomphant*-class, one *L'Inflexible*-class, and one *Redoubtable*-class (*Le Foudroyant*).

Scenario

July, 2009. The Conservative Party of Canada is in its second term as a minority government. During a cabinet meeting to discuss security and defence policy on Canada's North, the Prime Minister cautions his colleagues to keep uppermost in their minds that the opposition's continued unwillingness to support the expenditure of the significant funds required has not allowed the implementation of the 2006 plans to develop a new Arctic port, nor the construction of two armed icebreakers. These initiatives remain on the government's wish list.

Before proceeding, the Prime Minister excuses himself to take a high priority telephone call from the President of France. On his return he informs his Cabinet: "An unexpected situation has

¹.ibid.

².William McNally, *Nautilus SSN 571* (Dade City, FL: McNally Institute, 2001).

arisen in our Arctic waters. The President of France has just informed me of an important matter, of the utmost urgency which, I'm afraid, we shall have to deal with without delay. Lives may be at stake."

"The President said that he has been informed that one of his navy's *Triomphant* class SSBNs, le Sous-Marin Nucléaire Lanceur d'Engins de Nouvelle Génération (SNLE-NG) *Le Vigilant* SNG-618,¹ has reported a possible malfunction of its nuclear reactor while executing an under ice transit of the Arctic icecap."

"It is on the surface in the Lincoln Sea in mostly bergy water conditions² and off Cape Columbia, 83.2333° N, 69.9167° W. Communications with it are normal. On advice from the French Commander, la Force océanique stratégique (FOST), the President told me that he has decided the time has not yet come to ask NATO to issue a SUBSUNK message. However, he also said that his initial orders have gone out to France's la force sous-marine (FSM) and that he has alerted the British Prime Minister, the President of Russia, and the Secretary General of NATO."

"What he is asking right now, is that we accept his personal and profound apology for France not giving us the customary prior notice of their submarine's movements, and in light of the potentially serious danger to the boat and its crew should the situation take a turn for the worse, that we render assistance in the unlikely event that a rescue operation becomes necessary. I told him that our help would be forthcoming, and that I would get back to him as soon as possible to advise him of what Canada might be able to do."

"Meanwhile, I've asked the Minister of National Defence and the CDS to get their heads together, and tell me what the Canadian Forces' response capability is. I also said I want to know whether the Chief of Maritime Staff, or any of our other authorities or agencies, can tell us whether this SSBN may have experienced a reactor problem similar to the one that, we understand, may have caused the increased radioactivity in the cooling water that led to the recall of France's Rubis Amethyste-class SSN-602 *Saphir*, and the replacement of its nuclear core. And if so what are the implications to us?"

Scenario Four

Civil Unrest And Domestic Sabotage

Background

The community of Fort McPherson and its 900 people lies at 67°26'N, 134°53'W, on the east bank of the Peel River, and is

¹ <http://www.netmarine.net/forces/fost/index.htm>

² Canadian Ice Service. *Seasonal Outlook - North American Arctic Waters - Summer 2006*. The National/Naval Ice Centre, June 2, 2006.

connected to Dawson and Inuvik by the Dempster Highway. Aklavik, at 68°13'N, 135°00'W, is located on the Peel channel of the Mackenzie River Delta, 113 km south of the Arctic Coast.

There is no summer road access to these communities. In winter, however, an ice road stretches across the Mackenzie Delta to Inuvik. Inuvik, at 68°21'N, 133°43'W, is located on a navigable channel of the Mackenzie Delta, and is the largest Canadian community north of the Arctic Circle, and the regional government centre for the Mackenzie Delta area.

Oil and natural gas were discovered nearby in the early 1970s, and following extensive exploration, world class discoveries were identified. The first successful onshore oil-well in the Mackenzie Delta was drilled in 1969 at Atkinson Point on the Tuktoyaktuk peninsula. This was closely followed by a significant gas discovery at Parson's Lake in 1970.

Today, the Aboriginal Pipeline Group is a partner in a proposal to build the first pipeline along the Mackenzie Valley, to deliver gas from the Arctic to southern Canada and the US. As the centre for resource exploration and government, Inuvik has expanded with the development of Canada's Arctic oil and gas reserves. The town has a population of close to 4,000.

The Mackenzie Gas Project (MGP) proposes to build a 1,220-kilometre pipeline system along the Mackenzie Valley to link northern natural gas producing wells to southern markets. The main Mackenzie Valley Pipeline would connect to an existing natural gas pipeline system in northwestern Alberta. The proposed Project crosses four aboriginal regions in Canada's Northwest Territories (NWT), and will have a huge impact on the northern transportation system. Construction is expected to occur over a four-year period, from 2007 to 2010, during which time a number of other projects will be ongoing. The cumulative impact of all projects will peak at more than four times the normal NWT inbound traffic.¹

Scenario

January 15, 2013. The MGP is in full operation and the long awaited Great Northern Highway to Inuvik, that borders it, is now open all year round. Throughout its length, from Yellowknife via Fort Providence, Fort Simpson, Wrigley, Tulita, Norman Wells, Fort Good Hope, and Fort McPherson to Inuvik, the road is heavily travelled twenty-four hours a day, seven days a week, in both directions.

¹. Four major Canadian oil and gas companies and a group representing the aboriginal peoples of Canada's Northwest Territories are partners in the proposed Mackenzie Gas Project.

Some aboriginal peoples are moving forward with more land claims. Others are beginning to hear different voices from their younger members, who say the time has come to regain complete autonomy, and to take full control of their territory's resources.

Growing impatient with their elders entrenched, status quo position, and the continuing support they receive from most of the population in the areas towns and villages, a few disillusioned young men and women, with shared convictions, come together in what they believe is the just cause of freeing their people from an externally imposed way of life. Their mutually agreed goal is to gain total independence for their people within the borders of their ancestral lands. They form a First Nations' Liberation Movement (FNLM), and its clandestine inner leadership council (ILC) develops a plan of action to achieve its objective.

To help sway public opinion to its way, the ILC first convinces a small number of others, who are sympathetic to its goals, to join with them, and to establish small, independent, covert action cells (CAC) in Fort McPherson, Inuvik, and Aklavik. The ILC's initial plan is to initiate a series of coordinated attacks against the established authority, with a view to demonstrating to the local population, that because the current government cannot adequately provide for their security, it would be in their interest to lend support to their cause.

To accomplish its goal, and using the internet as its training source book, its means of communication among its members, and as a vehicle to raise funds, the ILC studies the art of irregular warfare, obtains essential weaponry and other materials, and makes its own improvised explosive devices from locally available goods. With a foundation for success established, it next plans and conducts training sessions in remote locations for the men and women recruited for its CACs. By the end of June, the ILC's plans for its first wave of attacks are complete, and the CAC's have received their assigned tasks.

July 20. During the night a section of buried 1.2-metre diameter gas pipeline south of Inuvik is sabotaged in three places, and the upstream compressor station is blown up, along with the road bridges on either side of it. The perpetrators remain unidentified by the local authorities, but posters circulated by them throughout the settlements area during the following days claim responsibility, and warn of more to come. Community leaders respond to citizens' growing fears for their safety and decide to seek outside assistance.

July 21. Before dawn the two wells in Ikhil, used to supply gas to the town of Inuvik, are set on fire. Simultaneously, an oil well at Atkinson Point on the Tuktoyaktuk peninsula is set ablaze. Again, the culprits escape the scene. More posters claiming responsibility

begin to appear everywhere. The RCMP increase their presence in the area but no arrests are made.

July 22. It is 14°C at 3:00 a.m. on the southern outskirts of Fort McPherson, when a log barricade is set up astride both lanes of the Great Northern Highway. It is manned by about 12 persons wearing face masks, and clad in camouflage uniforms. All are carrying small arms of various kinds. With each passing hour they are steadily reinforcing the obstacle by adding more heavy timbers and concrete Jersey Barriers left over from the previous year's road construction project.

The Fort McPherson RCMP detachment is alerted to the situation. By 6:00 a.m. three constables armed with side arms and a single shotgun are surveilling the rapidly enlarging obstacle. They have been instructed not to confront the miscreants, to remain out of sight of those manning the barrier, and to report what is going on.

At 5:40 a.m. Three ATVs, each bearing two camouflage uniformed individuals armed with small arms, and carrying what appears to be a single man-portable air defence system (MANPAD),¹ take up positions on high ground overlooking the gravel runways of the airports at Inuvik (12 kilometres east of the town), Fort McPherson (3.2 kilometres south), and Tuktoyaktuk (3.2 kilometres south east). The presence of the persons at the Inuvik and Fort McPherson airfields is detected by members of two 1st Canadian Ranger Patrol Group (1 CRPG) Ranger Patrols who immediately report what they have seen to their headquarters (JTFN in Yellowknife). Both Patrols are ordered to remain concealed and keep the men under surveillance.

Local residents, participating in the RCMP's Coastal-Airport Watch Program, spot the men at the Tuktoyaktuk airstrip, and report their presence to the local RCMP detachments which relays the information to its headquarters (Northwest Territories "G" Division) in Yellowknife.

¹ **MANPADS** are surface-to-air missile systems designed to be man-portable and carried and fired by a single individual or individuals.

Chapter 6

The Navy in Canada's Northern Archipelago

Kyle D. Christensen

Abstract

During the 2005 federal election campaign, Conservative leader Stephen Harper announced plans to develop an Arctic national sensor system; construct a military-civilian deep water docking facility in the north; and purchase three armed icebreakers. The most significant aspect of the Conservative Party's "Canada First" defence policy, and the one investigated in this chapter, is the pledge to acquire three armed heavy icebreakers. In this chapter the author argues that the Navy currently has, and will continue to have a very limited capability, to operate in the north. Therefore, the proposed Arctic Patrol Ship (APS) will be a valuable asset to bolster Canada's presence in the north. By maintaining icebreaking capabilities in the Canadian Coast Guard (CCG) and armed vessels with an enhanced ice capability in the Navy, the Government of Canada will achieve the best mix of capabilities to respond to challenges in the North. The Navy will maintain its multi-purpose combat-capabilities, and will remain an expeditionary interoperable force able to project power globally. These attributes and capabilities will serve the Navy and the Government of Canada best in addressing the challenges envisaged in the north over the next 25 years.

Résumé

Pendant la campagne électorale fédérale de 2005, le chef du Parti conservateur, Stephen Harper, a annoncé son intention de mettre au point un système de détection national pour l'Arctique, de construire une installation militaire et civile d'accostage en eau profonde dans le Nord, et de procurer trois brise-glaces armés. Le point le plus important de la politique de défense du Parti conservateur intitulé « Le Canada d'abord », et celui qui est examiné dans le présent chapitre, est la promesse d'acquisition de trois brise-glaces lourds armés. Dans ce chapitre, l'auteur soutient que la Marine est présentement dotée d'une capacité très limitée d'opération dans le Nord et que cette situation persistera. Par conséquent, le navire de patrouille arctique (NPA) envisagé sera un atout précieux pour soutenir la présence du Canada dans le Nord. En maintenant les capacités de la Garde côtière canadienne (GCC) en brise-glaces ainsi que des navires armés dotés de capacités améliorées pour la glace dans la Marine, le gouvernement canadien se retrouvera avec l'assortiment idéal des capacités nécessaires pour relever les

défis posés dans le Nord. La Marine maintiendra ses capacités de force polyvalente et apte au combat, et demeurera un corps expéditionnaire inter opérable en mesure d'affirmer sa puissance à l'échelle mondiale. Ces attributs et ces capacités seront particulièrement utiles à la Marine et au gouvernement du Canada pour relever les défis qui se poseront dans le Nord au cours des 25 prochaines années.

During the 2005 federal election campaign, Conservative leader Stephen Harper announced that a new Conservative government would "stand up for Canada's territorial sovereignty in the Arctic."¹ Elements of that announcement will have a direct impact on the Navy, including the development of an Arctic national sensor system to monitor northern waters for submarines and other vessels; the construction of a military-civilian deep water docking facility in the Iqaluit region; and the purchase of three new armed icebreakers capable of carrying troops.²

By far the most significant aspect of the Conservative Party's "Canada First" defence policy is the pledge to acquire three armed heavy icebreakers capable of carrying troops. This acquisition will provide the government with a new capability to demonstrate and enforce Canada's Arctic sovereignty.

The first section of this chapter will assess the Navy's current ability to operate in the Arctic. The second will assess future or proposed capabilities, and if these capabilities will increasingly contribute to the protection of Canada's Arctic sovereignty. These sections will show that the Navy currently has, and will continue to have, a very limited capability to operate in the north. Therefore, the proposed Arctic Patrol Ship (APS) will be a valuable asset to bolster Canada's presence in the north.

The third section will investigate the joint nature of Arctic operations in the north. It will argue that icebreaking capabilities should continue to reside with the Canadian Coast Guard (CCG), while armed vessels with an enhanced ice capability ought to remain with the Navy. Working jointly, the Navy and Coast Guard provide the Government of Canada with the best mix of capabilities to respond to challenges wherever and whenever they arise. This includes fulfilling tasks ranging from keeping northern waterways and harbours open for transit, to enforcing environmental regulations and protecting Canada's Arctic sovereignty.

¹ Conservative Party of Canada (CPC). (December 13, 2005). *Defending Sovereignty*. Issue Backgrounder. Ottawa: Conservative Party of Canada (CPC).; and S. Harper. (December 22, 2005). (Online) Harper Stands Up for Arctic Sovereignty. *Stand Up for Canada*. Address by Conservative leader Stephen Harper. Winnipeg, Manitoba: Conservative Party of Canada (CPC). <http://www.conservative.ca/media/20051222-Speech-Harper-Winnipeg.pdf> (November 14, 2006).

² *Ibid.*

The fourth section will assess what additional assets and/or capabilities that the Navy could use to protect and secure Canadian Arctic sovereignty. While the Navy will retain a largely supportive role in the north – with primary responsibility for law enforcement, monitoring economic activities, and other tasks falling on other government departments (OGDs) – it has unique capabilities that can be use to assist in a variety of roles. Examples include the Navy’s inherent expeditionary ability to project power globally, the Navy’s ability to be interoperable, and crewing concepts that can facilitate greater interdepartmental flexibility.

Finally, this chapter will make some brief observations about naval operations in the Arctic. These would enhance Canada’s ability to respond to a spectrum of events ranging from monitoring economic activities to protecting Canada’s Arctic sovereignty. In this context, the Navy should maintain its multi-purpose combat-capabilities, and ensure it remains an expeditionary interoperable force able to project power globally. These attributes and capabilities will serve the Navy best in addressing the challenges envisaged in the north over the next 25 years and beyond.

Current Capabilities

The question of whether armed icebreakers are required to protect and secure Canada’s Arctic sovereignty is not as straightforward as one might expect. From a purely rational point of view, it is logical to conclude that if icebreakers are required to protect Canada’s Arctic sovereignty, then armed icebreakers should be even better. However, the question largely depends on exactly what the Government of Canada wants the Navy to do in the north, and what the Navy’s capabilities are.

Currently, the Navy has a very limited capability to operate in the north. The fleet consists of three *Iroquois* class area air defence destroyers (DDG), 12 *Halifax* class multi-role patrol frigates (FFH), three *Protecteur* class Auxiliary Oil Replenishment (AOR) vessels, 12 Maritime Coastal Defence Vessels (MCDV), and four *Victoria* class long-range patrol diesel-electric submarines (SSK). In addition, Air Force assets include 18 CP-140 *Aurora* Long Range Patrol Aircraft (LRPA), and 27 CH-124 *Sea King* anti-submarine warfare (ASW) helicopters.

Table 1 provides a breakdown of the Navy’s current surface ship ice capabilities. It highlights the fact that the *Iroquois* class destroyers and the *Halifax* class frigates have only a brash ice or up to the ice edge capability, whereas the AOR and MCDV classes have a slightly better than first year ice capability.

Table 1. Canadian Navy Surface Ship Ice Classifications

DDG AREA AIR DEFENCE DESTROYER (IROQUOIS CLASS) - 3 -	FFH MULTI-ROLE PATROL FRIGATE (HALIFAX CLASS) - 12 -	AUXILIARY OIL REPLENISHMENT (AOR) (PROTECTEUR CLASS) - 2 -	MARITIME COASTAL DEFENCE VESSEL (MCDV) (KINGSTON CLASS) - 12 -
<i>Brash ice up to the ice edge</i>	<i>Brash ice up to the ice edge</i>	<i>Lloyd's Register Ice Class 3</i>	<i>Lloyd's Register Ice Class 3</i>
Brash ice is ice cover consisting solely of first year ice that is non-uniform and in small pieces. The largest of these small pieces may cause slight dishing of hull plating when struck. Vessels sail in brash ice they do not break it.	Brash ice is ice cover consisting solely of first year ice that is non-uniform and in small pieces. The largest of these small pieces may cause slight dishing of hull plating when struck. Vessels sail in brash ice they do not break it.	Old class, probably equivalent to Ice Class 1D. Lloyd's rule for Ice Class 1D. Ship intended to navigate in thin first year ice conditions in areas other than the Northern Baltic. The only requirement is to strengthen the forward hull region, the rudder, and steering arrangements.	Old class, probably equivalent to Ice Class 1D. Lloyd's rule for Ice Class 1D. Ship intended to navigate in thin first year ice conditions in areas other than the Northern Baltic. The only requirement is to strengthen the forward hull region, the rudder, and steering arrangements.

Table 2 provides a list of ice categories and types, ice thickness, and ship requirements for operating in various ice conditions.

As a general rule of thumb, older ice is thicker ice, and ships operating in "old ice" require significantly more strengthening and reinforcing than ships operating in lesser ice conditions. While these measurements are not exact, they show general orders of magnitude when assessing relative ice strength and ship strength requirements. The placement of the Navy's vessels in the table provides a similar "rule of thumb" in terms of the ice conditions they can operate in.

Table 2. Ice Types and Thickness

Ice Depth	Categories Of Ice	Types Of Ice	Definitions	Ship Needed
120-200+ (CM)	Old Ice Ice that has survived at least one year's melt. Found most often in the Arctic.	Multi-Year Ice	Old ice surviving at least two summer's melt.	Heavy Icebreaker
		Second Year Ice	Old ice surviving one summer's melt.	
	First Year Ice Sea ice not more than one winter's growth, developed from ice thicker than 30 cm.	Thick First Year Ice	First year ice, over 120 cm.	Medium Icebreaker
		Medium First Year Ice	First year ice, 70-120 cm	
30-120 (CM)		Thin First Year Ice/White Ice – Second Stage	First year ice, 50-70 cm thick.	Light Icebreaker
		First Thin Year Ice/White Ice – First Stage	First year ice, 30-50 cm thick.	
	Young Ice Ice in the transition between open water and first year ice, 10-30 cm thick.	Grey-White Ice	Young ice, 15-30 cm thick.	AOR and MCDV
		Grey Ice	Young ice, 10-15 cm thick.	
10-30 (CM)	Ice-Infested Waters Waters that have any amount of ice on them.	Brash Ice	Ice fragments less than two meters across.	Destroyer and Frigate
		New Ice/Nilas Ice	Sea ice up to 10 cm.	
0-10 (CM)				
0	Open Water A large area of freely navigable water.			

The AOR's and MCDV's first year ice capability permit operations in ice up to approximately 50 centimeters thick. The destroyer's and frigate's ice capability permit operations in new/nilas ice less than 10 centimeters thick, and in accumulations of brash ice made up of fragments not more than two meters across, usually found during the melting of ice pack.¹ While the Navy's AORs and MCDVs have a slightly better ice capability than the destroyers and frigates, these ice capabilities are modest and significantly less than those of a light icebreaker.

These ice classifications ultimately define the areas (zones) and dates where permissible operations can be conducted in the Arctic. The Arctic Shipping Pollution Prevention Regulations (ASPPR) establishes 16 zones (see Figure 1) of increasing ice severity in the north with opening and closing dates of operation for each zone.²

Depending on ice strengthening and reinforcement, construction standards, propulsion systems, and other characteristics, ships are permitted to operate in specific zones of the Arctic at different times.

The current ice classifications of Canadian Naval vessels would limit operations in the High Arctic and Western Arctic (zone 1), much of the Beaufort Sea (zones 1 and 4), and in many of the waterways in the central Canadian Arctic archipelago (zones 2, 3, 5, and 6). In the remaining zones, minimum ice cover usually occurs from early June to mid-September, when freeze-up begins.³

This means that the maximum permissible period that the Canadian Navy will be able to safely enter and operate in the north will be from early June to mid-September.⁴

In order to increase the operational area of Canadian Naval vessels operating in the Arctic, platforms with a greater ice capability will be necessary. *Table 3* shows the International Association of Classification Standards (IACS) Polar Ice Classification Rules. The classification standard provides for a level of structural strength and mechanical system robustness corresponding to a level of operational capability in ice. Canada's current ice capable platforms fall well within the Polar Class 4 or Polar class 5

¹ Nilas is a thin elastic crust of ice that easily bends under pressure and on waves. It grows in a pattern of interlocking "fingers" of ice and water, has a matte surface, and can be up to 10 centimeters in thickness.

² Canada, Department of Justice (1978). (Online) *Arctic Waters Pollution Prevention Act* (C.R.C., c. 353). Ottawa: Consolidated Regulations of Canada. <http://laws.justice.gc.ca/en/A-12/C.R.C.-c.353/fulltoc.html> (November 21, 2006).; and Canada, Department of Justice (1978). (Online) *Shipping Safety Control Zones Order* (C.R.C., c. 356). Ottawa: Consolidated Regulations of Canada. <http://lois.justice.gc.ca/en/A-12/C.R.C.-c.356/index.html> (November 11, 2006).

³ Canada, Environment Canada. (Online) *Sea Ice Climactic Atlas – Northern Canadian Waters 1971-2000. Annual Arctic Ice Atlas*. Ottawa: Canadian Ice Service. <http://ice-glaces.ec.gc.ca/App/WsvPageDsp.cfm?ID=11676&LnlD=15&Lang=eng> (November 17, 2006).

⁴ As described later, Exercise NARWHAL took place from August 12-August 30, at the maximum point of ice melt in the North.

categories. To allow year-round access to locations such as Iqaluit, or to transit the Northwest Passage, requires a vessel of not less than Polar Class 3.

Table 3. International Association of Classification Standards (IACS)

<i>IACS Polar Classification</i>	<i>Maximum Ice (meters)</i>	<i>Description</i>
Polar Class 1	3.0m multi-year	Year-round operation in all Polar waters.
Polar Class 2	2.4m multi-year	Year-round operation in moderate multi-year ice conditions.
Polar Class 3	1.8m multi-year	Year-round operation in second-year ice, which may include multi-year ice inclusions.
Polar Class 4	1.3m multi year	Year-round operation in thick first-year ice that may include old ice inclusions.
Polar Class 5	0.9m multi year	Year-round operation in medium first-year ice that may include old ice inclusions.
Polar Class 6	0.6m multi year	Summer/autumn operation in medium first-year ice that may include old ice inclusions.
Polar Class 7	0.4m multi year	Summer/autumn operation in thin first-year ice that may include old ice inclusions.

Future Capabilities

Over the next two decades, the Navy's current fleet of ships will become increasingly obsolete and will require replacement. As this section will show, with the exception of the Navy's proposed APS, the future fleet will not have a significantly greater ability to operate in the Arctic. Therefore, the APS creates an opportunity for the Navy to enhance its Arctic ice operations, and contribute to northern security.



Figure 1. Canadian Shipping Safety Control Zones

Joint Support Ship (JSS) and Single Class Surface Combatant (SCSC)

The Navy's proposed Joint Support Ship (JSS) will replace its ageing *Protecteur* class AORs. While the JSS will serve as a replenishment vessel as its primary function, it will offer enhanced capabilities in terms of command, control, and troop transport. It also satisfies a requirement to operate in Arctic conditions with a first year ice capability of up to 70 centimeters of ice.¹ Although the capability to operate in ice-infested waters is useful, the JSS's ice capability is less than a Polar Class 7, and therefore will not be a significant improvement over the current AOR. Even though the JSS's declared operational limit is 70 centimeters of first year ice, it is unlikely that it will ever approach that threshold.² In other words,

¹ Canada, Department of Nations Defence. (Online) Proposed Ship Capabilities. *Joint Support Ship (JSS)*. Ottawa: Assistant Deputy Minister (Material).

http://www.forces.gc.ca/admmat/dgmepm/pmojss/capabilities_e.asp (November 21, 2006).

² If the Joint Support Ship (JSS) is expected to operate at the maximum of its ice capability of 70 centimeters – or in a thin first year ice to medium first year ice category – it could very easily be considered a light icebreaker. However, while the JSS will be capable of operating in

there is no discernable improvement in the future fleet's ice capability over that of the current fleet.

Similarly, the Navy's proposed Single Class Surface Combatant (SCSC) will replace its current fleet of destroyers and frigates. The objective of the SCSC project is to acquire a single class of vessels suitable to replace the capabilities found in the current fleet of destroyers and frigates.¹ The SCSC is not only intended to offer enhanced capabilities in term of command and control, but new capabilities such as "over the shore" fire support. Since the ship's design is still conceptual, it is difficult to determine the exact ice requirements that will be outlined in its Statement of Requirements. Nevertheless, certain assumptions about the SCSC's operational environment and ice capability can be made.

It is presumed that the SCSC will require an ability to operate in the full range of the world's weather, climatic, oceanographic, and hydrographical conditions. This will also require an ability to influence the Arctic, and to operate and navigate in brash ice without the assistance of an icebreaker. Although this will provide a minimum level of capability for the Navy to conduct sovereignty missions in northern latitudes, it is even less than the JSS's ice capability and not a significant improvement over it will not be significantly greater than the Navy's current fleet of destroyers and frigates.

Thus, the Navy's future fleet will not be able to operate at times and in areas of the Arctic any more effectively than the current fleet. This means that the future fleet's maximum permissible period to safely enter and operate in the North will also be from early June to mid-September. Moreover, constructing the JSS and/or SCSC to be equivalent to a light or medium icebreaker, or Polar Class 4 or Polar Class 5, would not only be cost prohibitive, but might come at the expense of combat performance in other areas such as speed and maneuverability. Therefore, a multi-year ice capability is not deemed necessary for the future JSS/SCSC fleet.

Arctic Patrol Ship (APS)

As part of the Navy's future fleet requirements, the replacement of the current generation of MCDVs will also be necessary. Consequently, this is an area where the Navy can acquire a far greater Arctic capability than currently exists by shifting the orientation of the mission from coastal defence to Arctic patrol and

this type of ice category as an interim measure, it is unlikely that it will operate in this type of ice condition on a regular basis or for an extended period.

¹ Canada, Department of Nations Defence. (Online) *Single Class Surface Combatant (SCSC) Homepage*. Ottawa: DGMEPM. http://dgmepm.ottawa-hull.mil.ca/special/SCSC/index_e.asp (December 7, 2006).

coastal defence. Since the APS is also conceptual at this point, it is difficult to determine the exact ice requirements that will be outlined in its Statement of Requirements. However, by examining existing platforms on the market, and making assumptions about the APS's operational environment, we can make certain deductions.

In order to increase the Navy's operational time and area in the north, the APV will require the ability to operate in ice conditions of up to at least one meter thick at a minimum. However, the ability to operate year-round in second-year ice (i.e., Polar Class 3) would be considered optimal. Since the Navy's current and planned future assets – namely the JSS and SCSC – will not approach this level, the APV may be the key platform for achieving this objective. The APS will require an ability to operate in all types of weather and climactic conditions, and to be able to conduct helicopter operations as well. It will require enough room onboard to transport troops, and enough flexibility to conduct a variety of missions, either independently, or with OGDs. It will also require enough endurance to operate across the vast distances of the Arctic, and to have maintenance and serviceability timelines with enough reliability to permit extended deployments.

Currently on the market, the Royal Danish Navy's *Thetis* class ocean patrol vessel is a multi-purpose frigate built to conduct missions in Arctic ice conditions. The frigate is armed, has a helideck and hanger for helicopter operations, has a double-skinned hull, is ice-strengthened with an icebreaking bow, and is able to proceed through 80 centimeters of solid ice.¹ The ship can operate in all sea conditions at speeds of seven to nine kilometers per hour (four and a half to six miles per hour), and has an endurance of 15,300 kilometers (9,500 miles).² With a displacement of only 3,500 tonnes, however, the *Thetis* class ocean patrol vessel represents the lower end of armed ice capable ships, and unlikely meet the minimum limit of what is required for the Canadian APS capability.

Another option for an armed ice capable vessel is the Norwegian Coast Guard *Svalbard* offshore patrol vessel/light icebreaker. The *Svalbard* offers enhanced capabilities over those found in the *Thetis* class ocean patrol vessel. It is a multi-purpose vessel able to carry out a variety of missions. The *Svalbard* has a displacement of 6,500 tonnes, a helideck and hanger to undertake helicopter operations, is capable of towing up to 100,000 tonnes, and can carry out icebreaking operations in ice up to one meter thick.³ From an operational point of view, a *Svalbard* offshore patrol

¹ Naval-Technology.com. (Online) Thetis Class Frigates, Denmark. *Destroyers and Frigates*. <http://www.naval-technology.com/projects/thetis/> (December 9, 2006).

² *Ibid*.

³ MarineLog.com. (March 12, 2002). (Online) DNV Classes Norwegian Coast Guard Icebreaker. *News Updates*. <http://www.marinelog.com/DOCS/NEWSMMII/MMIIMar12.html> (December 9, 2006).

vessel meet the minimum limit of what is required for the Canadian APS capability, and would help fulfill many of the Navy's northern sovereignty requirements.

Joint Coast Guard-Navy Operations in the Arctic

To establish and maintain sovereignty, international law requires that a state be capable of monitoring activity in nationally claimed areas. Increasing shipping traffic has resulted in the necessity for the federal government to guarantee a strong presence in Canadian waters. This is particularly true in the Arctic where there is an increase in marine traffic due to exploration, development, and tourism.

The post September 11, 2001, security environment has also strengthened the notion of a security perimeter that extends out and around North America. The presence of both the CCG and the Canadian Navy fleets serves as a deterrent to unlawful acts perpetrated against Canadian territory and maritime approaches. Therefore, the presence of both fleets is required to demonstrate Canada's capability and commitment to maritime security.

While armed vessels with an enhanced ice capability ought to remain with the Navy, icebreaking capabilities should remain with the Coast Guard. The CCG icebreaker fleet is the only on-water demonstration of Canada's ability to express sovereignty within the ice-covered areas of the Arctic Ocean.¹ The legal issues surrounding Canada's sovereignty over its Arctic archipelago are complex, and are challenged by a number of countries including the United States, Denmark, and other European countries. Canada must, therefore, have a modern icebreaker capability to establish a presence and to undertake positive vessel traffic control within the Arctic.²

Icebreaking is often viewed as a rather narrow specialty associated with expeditions into the far north. However, ice operations involve a broad spectrum of tasks including support to science, pollution prevention, opening and maintaining harbours and waterways, and saving lives on frozen waters. To conduct these tasks the CCG currently maintains 19 ageing ice capable vessels consisting of five dedicated icebreakers and 14 multi-tasked ice-strengthened vessels. Since Coast Guard icebreakers are best equipped to handle the tasks outlined above, maintaining and modernizing the Coast Guard fleet would be a recommended course of action.

¹ Canada, Canadian Coast Guard (CCG). (Online) Sovereignty and Federal Presence. *Roles and Responsibilities*. Ottawa. http://www.ccg-gcc.gc.ca/overview-apercu/roles_e.htm (December 1, 2006).

² *Ibid.*

Unlike the United States Coast Guard (USCG), however, the CCG is a civilian organization. Therefore, enforcing and protecting Canada's maritime sovereignty is a military task that usually falls under the responsibility of the Canadian Navy.¹ The enhanced ice capability found in the APS, the Navy's proposed replacement for the MCDV, will provide the Government of Canada with a visible and committed capability in the north.

Having armed assets with an enhanced ice capability will give the government an ability to respond to events and challenges in the north, support law enforcement activities, contribute to continental security, and secure and protect Canada's Arctic sovereignty. Consequently, maintaining armed vessels with an enhanced ice capability in the Navy, and general icebreaking capabilities in the Coast Guard, will provide the federal government with a spectrum of options with which to pursue these interests.

Other Naval Capabilities

While the Navy's current and projected fleet – with the exception of the APS – will have a limited ability to operate in the far north, the Navy is inherently adaptable to deploy to the north in a positive and complementary fashion. This adaptability comes from the Navy's inherent expeditionary and global power projection capability, its ability to be interoperable with allied navies, and its flexible crewing concepts that can facilitate greater interdepartmental flexibility.

Expeditionary Forces/Force Projection

Canadian naval operations in the north require an expeditionary capability because of the extremely austere conditions in the region. Maintaining an expeditionary force projection capability will greatly enhance the Navy's ability to deploy and conduct sovereignty operations in the north.

The Navy's ability to operate in the north is derived from its ability to operate globally. If one can deploy the Navy to a location off the coast of Pakistan/Afghanistan and the Persian Gulf, one can deploy the Navy into the north. If the Navy is able to maintain its core expeditionary capabilities, it is well placed to conduct operations in the north. This does not require that the Navy operate in the ice pack or at the North Pole, but it does require that the Navy be able to travel the vast distances involved in northern operations,²

¹ Canada, Canadian Coast Guard (CCG). (Online) Effective Presence. *Operating Context*. Ottawa. http://www.ccg-gcc.gc.ca/overview-apercu/operating_e.htm (December 1, 2006).

² For instance, the distance from Halifax, Nova Scotia to Alert, Nunavut is approximately 4,500 kilometers, while the distance from Halifax, Nova Scotia to the Yukon-Alaska border

to arrive in the north, and to be organized to accomplish a specific objective within the accessible parts of the Arctic archipelago.

A basic definition of an expeditionary force is an “armed force organized to accomplish a specific military objective in a foreign country.”¹ While there is certainly no intention to suggest that the Arctic is considered a foreign country, it can be viewed as a unique operational area requiring several of the same attributes needed to deploy globally. The requirements or characteristics for maintaining a basic expeditionary model include:

- High Readiness;
- Sustainable Expeditionary Force Generation;
- Strategic Mobility;
- A Deployable Command and Control Element;
- Interoperability with Major Coalition Partners; and
- Robust In-Theatre Support.²

The Canadian Navy has generally been the first to respond to crises overseas since it has strategic mobility and a deployable command and control capability, is interoperable because of its membership in the North Atlantic Treaty Organization (NATO) and its history of operations with the United States Navy, maintains a robust or self-sufficient in-theatre support capability by means of the use of its AOR vessels, and can be task-tailored particularly because of the Navy’s Task Group concept. These characteristics are as important for naval deployments into Canada’s north as they are for naval deployments abroad.

As far as expeditionary operations are concerned, Naval Task Groups and individual ships, sailors, and maritime air crews have deployed on operations as far abroad as the Baltic, the Adriatic, the Persian Gulf, Indian Ocean, South Africa, Cambodia, China, Australia, South America, and the Arctic.³

A review of current capabilities and past deployments demonstrates the Navy’s ability to deploy an expeditionary force in diverse and austere environments. These capabilities will continue to be essential for northern operations because of the Arctic’s harsh

through the Northwest Passage is about 5,200 kilometers. USA, Department of Agriculture. (Online) *Surface Distance Between Two Points of Latitude and Longitude*. <http://www.wcrl.ars.usda.gov/cec/java/lat-long.htm> (September 27, 2006).

¹ USA, Department of Defense. (2001). *Dictionary of Military and Associated Terms*, JP 1-02. Washington, D.C.: Joint Doctrine Division. p.156.

² T. Gongora. (2002). The Meaning of Expeditionary Operations from an Air Force Perspective. In R.H. Edwards and A.L. Griffiths. (eds.). *Intervention and Engagement: A Maritime Perspective*. Halifax: Centre for Foreign Policy Studies. pp.263-264.

³ K.E. Williams. (2004). Canada’s Maritime Strategy: A Naval Perspective. In R.H. Edwards and G. Walker. (eds.). *Continental Security and Canada-U.S. Relations: Maritime Perspectives, Challenges and Opportunities*. Halifax: Centre for Foreign Policy Studies. p.160.

and extreme environment, its vastness and isolation, and its lack of infrastructure and support facilities.

Interoperability

Another characteristic that makes the Navy inherently adaptable for northern operations is its ability to be interoperable with Canadian Forces Northern Area (CFNA) headquarters, OGDs, and the other services in joint operations.

The Navy's interoperability with continental actors during the terrorist attacks on New York and Washington on the morning of September 11, 2001, provides a case in point.

On September 11, 2001, HMCS *Iroquois* was off the coast of Nova Scotia. As the attack unfolded, HMCS *Iroquois* established a secure datalink with North American Aerospace Defence Command (NORAD) Headquarters in Colorado Springs, Colorado, and monitored air traffic over the North Atlantic and East Coast, as commercial air flights were diverted from United States airspace. This was the first time in history that Canadian Naval forces had plugged in to the North American aerospace picture and assisted in continental defence.¹ The ability to establish and maintain this type of interoperability with relevant actors in the north will be a priority for the Navy.

Currently, however, CFNA headquarters has very limited surveillance and reconnaissance collection and collation capabilities. Attempts are being made to improve this with satellites, high-altitude and medium-altitude long-endurance unmanned aerial vehicles, and high frequency surface wave radars. High frequency surface wave radars installed in Newfoundland, for instance, have been able to detect surface ships and low-flying aircraft significantly beyond the visible horizon.²

The detection and surveillance of approaching ships, or of ships transiting Canadian northern waterways, could be carried out by distant, airborne, space-based, and/or shore-based radar systems. Once identified, suspicious contacts could then be subjected to closer inspection by manned or unmanned airborne or ship-based systems, including direct boarding by inspection teams if required.³ The Navy's role in this scenario is largely dependent on its ability to be interoperable with these assets.

Not all challenges in the north, however, will involve only the Navy. Sometimes the Navy may have a supporting role. As a result,

¹ R. Gimblett. (2004). *Operation Apollo: The Golden Age of the Navy in the War Against Terror*. Ottawa: Magic Light Publishing. pp.8-11.

² G. Lindsey. (Summer 2003). Potential Contributions by the Canadian Armed Forces to the Defence of North America Against Terrorism. *International Journal*. 58 (3). p.321.

³ *Ibid*. p.320.

being interoperable with the Army and Air Force will be important in northern operations. The Navy's involvement in *Exercise NARWHAL* is a case in point. *Exercise NARWHAL* was a large-scale joint exercise, with the Army and Air Force, to locate and prevent enemy forces from capturing sensitive technology from a downed satellite in the Canadian Arctic.¹ This was the first such joint exercise for the Navy in the north since the end of the Cold War. Despite some setbacks, the exercise was largely successful and highlighted the Navy's ability to act as a troop transport for the Army, to conduct boarding operations in an austere environment, and to take part in civil-military type operations by participating in community relations.

As *Exercise NARWHAL* highlighted, maintaining a robust command and control network is a key aspect of being interoperable in Canada's north, and facilitates situational awareness. Knowing who is entering Canadian Arctic waters, being able to share that information across the Canadian Forces, and having an ability to influence and control these events jointly is fundamental to conducting effective joint operations when securing Canada's Arctic sovereignty.²

Modular Crewing Concept

The concept of modularity has many definitions. However, one area that holds great promise is the concept of "crewing modules." This concept allows a capability, consisting of equipment, personnel, support material, and command, control, and communications equipment, to be moved from one platform to another. As part of the concept, a base crew able to perform certain minimum functions/missions is augmented as necessary by crewing modules with specific capabilities. These modular crew capabilities include the necessary personnel to both support and perform a specific mission or sets of missions. These crewing modules would, then be a means of increasing the Navy's flexibility, responsiveness, and even interoperability.

The best example to illustrate the notion of crewing modules is the Air Force's Air Detachments (AirDet) found on Canadian destroyers and frigates. The AirDet comes as a self-contained unit of equipment, maintenance facilities, and personnel. If the AirDet is required for a particular mission, task, or deployment, the entire AirDet embarks. Conversely, if the AirDet is not required, the entire detachment is removed from the platform and does not embark.

¹ J.G. Frey. (September 15, 2004). Elements Come Together. *The Maple Leaf*, 7 (30). p.3.

² *Ibid.* p.314.

This concept can be expanded to include not only AirDets, but other detachments as well. For example, boarding personnel, Special Forces, search and rescue, and other specialized personnel can form crew modules can move from one platform to another. Additionally, the ability to migrate crew modules not only between Navy ships (i.e., between SCSC and APS), but also between Naval ships and Coast Guard icebreakers, will increase the Navy's ability to contribute to law enforcement and sovereignty missions in the north. Having the ability to migrate certain capabilities between platforms of OGDs would improve flexibility and interoperability at many levels. For example, the JSS and/or the APS could provide command, control, troop transport, self-defence, and support functions, while CCG icebreakers provide route survey and forward operating locations for Naval crewing modules to embark from. By utilizing resources and assets in this way, the Government retains a dynamic set of options to pursue its interests in the north.

Discussion/Observations

In the final analysis, the Navy's ability to operate in the north will be determined by what the Government wants to do in the north, and the resources it provides. In one scenario, the government may only wish to monitor economic activities, enforce environmental regulations, and be able to show a presence when responding to specific events. In another scenario, the Government may also want to take a more robust approach when securing Canada's Arctic sovereignty. This might include maintaining a presence in the north, conducting law enforcement activities throughout the region, projecting multi-purpose combat capable forces into the Arctic, being able to protect northern Canadians, contributing to continental defence, being able to enforce the government's will, and defending Canada's Arctic sovereignty.

Based on the Conservative Party's pronouncements during the last election campaign, it would certainly appear they favour a more robust stance on Arctic sovereignty and security issues. In this context, Canada could bolster its presence in the north with a mix of platforms that provide a spectrum of capabilities. Maintaining and enhancing the Coast Guard's icebreaking fleet would provide the government with a visible and committed capability in the north. However, armed vessels with an enhanced ice capability ought to remain with the Navy. By maintaining icebreaking capabilities in the Coast Guard and armed vessels in the Navy, the Government of Canada retains a diverse range of options with which to respond to and influence events in the north.

The Navy will retain a largely supportive role in the north, however. Primary responsibility for tasks conducted in the north will fall on OGDs. Additionally, the Navy's current and future fleet, with

the exception of the APS, will have a limited ability to operate in the far north. When required, however, the Navy will utilize those areas of the Arctic that it can operate in to conduct sea control and sea denial operations, control access points, entrances, and chokepoints, and be interoperable with OGDs. Thus, the ability to seize a strategic chokepoint in the north, sustain a presence there until any challenge is neutralized, and prevent violations of Canadian sovereignty, makes a tangible contribution to Canadian security and to the enforcement of national will.

As this chapter demonstrates, in addition to the capabilities available in the APS, characteristics such as being expeditionary, interoperable, and exploring crewing modules will make the Navy central to northern security. Provided that the Navy maintains its interoperable, multi-purpose combat-capabilities, and remains an expeditionary force, it will be well placed to address the challenges in the north over the next 25 years.

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Chapter 7

Force Requirements (Land)

Peter Gizewski and Andrew B. Godefroy

Abstract

Defence requirements for Arctic security have long been confronted by a capability/commitment mismatch. A source of growing concern given the expected rise in importance of Arctic security in the years ahead, the mismatch is particularly acute in the case of the Land Force. Nevertheless, recent work in the Directorate of Land Capability Development offers prospects for improvement. In fact, an Army governed by the concept of Adaptive Dispersed Operations (ADO) may offer substantial improvements in capability and thus a more effective means of meeting Northern security challenges in the years ahead.

Résumé

La question de la sécurité dans l'Arctique a, depuis longtemps, été débattue en présence d'une disparité entre les capacités militaires disponibles et les tâches à accomplir. Une source de préoccupation grandissante compte tenu de l'importance croissante de la sécurité dans l'Arctique, cette disparité est la plus grande dans le cas des Forces terrestres. Néanmoins, de récents travaux menés par la Direction du développement des capacités terrestres offre un espoir d'amélioration. En fait, une armée régie par le concept d'opérations dispersées adaptatives pourrait produire des améliorations importantes en termes de capacités et offrir un moyen efficace de répondre aux défis posés par la sécurité dans le Nord au cours des années à venir.

Introduction

The security of the Canadian North has been a perpetual challenge for both Canadian policymakers and the military. The territory is vast and impossible to fully survey, much less defend. The complex nature of security threats in face of extreme distances, as well as complex terrain and weather conditions, creates demands that can at times seem insurmountable to both politician and soldier, yet it is both a policy and a mission that cannot fail. The Canadian government must be prepared to protect its sovereignty and interests in the Arctic and must ensure that it maintains a land force that is capable of exercising Canadian sovereignty and interests there.

In the past, the government tended to ignore the security challenges of Canada's Arctic, especially given the resources required. Though the threat was not always salient – in fact there was an ongoing tendency to hope that nothing would happen in the North – Canada has traditionally made only token demonstrations of military or constabulary force. Even after the Second World War efforts heavily focused on air and sea elements (because of the intemperate climate, and the need to cover wide areas) rather than a large presence on the ground. As well, the perceived threat was primarily aerospace based (bombers, missiles, satellite over flights, etc.) As a result the focus was largely on early warning and deterrence, Arctic roles that the land force did not traditionally make large contributions to.

Despite a modest past, times are changing and the North is presenting new security and defence demands. In fact it is increasingly likely that demands will continue to grow in years ahead and that, ergo, so too could demands on military forces, including the land element.

Future Threats to the North

In essence, four factors have gone far in raising the profile of the Arctic and its security over the past decade:

- a) the terrorist attacks of 9/11,
- b) climate change,
- c) rising demand for natural resources, and,
- d) a number of highly salient incidents involving the defence of Canadian Arctic security and sovereignty that have occurred throughout the past decade.

Indeed, each has highlighted possibilities for greater access and activity within the region and, most importantly -- concerns over its growing vulnerability to danger, dispute and mishap.¹

The events of 9/11 suggested a particularly salient threat. To be sure, the terrorist bombings worked to fundamentally alter the security context for North America as a whole -- exposing in effect its vulnerability to terrorist infiltration and assault. Yet they also served to underline the position of the Far North as a particularly vulnerable point of enemy entry – especially in light of its vast area and already thin security coverage. Not surprisingly, worries over the North serving as a potential point of future enemy infiltration began to rise.

¹ For a good overview of these factors, see Rob Huebert, "Renaissance in Canadian Security?" *Canadian Military Journal*, Vol. 6, No. 4, (Winter 2005-2006), pp. 17-29.

Regional climate change only exacerbated concerns – with evidence of steady and substantial warming of the region increasing prospects for accessibility to, and activity within the North still further. Admittedly, much projected activity seemed relatively benign if not beneficial -- most notably in the form of increased tourism, development, and commercial activity. Nevertheless, prospects for mishap and dispute were equally apparent – and increasingly disturbing – particularly in light of the regions already fragile ecosystems.

In fact, growing evidence of and interest in the regions considerable resource potential – particularly in the areas of oil and natural gas, made such worries all the more acute. As global demands for energy increased, exploration and talk of pipelines poised to feed southern markets proliferated, so too did concerns over potential risks -- with worries of future terrorist attack, shipping and airline disasters, and the human and environmental tragedies that could result from them becoming all the more prominent. Not surprisingly, questions about how to address such threats became all the more salient – and pressing.

Meanwhile, a number of events on the diplomatic stage worked to further highlight the region. Particularly salient were issues of territorial sovereignty – with national coverage of Canada's dispute with Denmark over Hans Island, as well as renewed concern over the future of the North West Passage underlining the North's potential as a possible flashpoint in years to come.

Such trends – along with the concerns they raise – persist. Indeed, terrorism continues to threaten North American Security. Climate is proceeding and will likely worsen. Oil and gas exploration and development proceeds apace. And interest in Arctic security and sovereignty issues remains high.

Perhaps not surprisingly, recent years have witnessed repeated and explicit pledges on the part of Canadian government for an increased military presence in the Arctic – with current Defence Minister Gordon O'Connor calling for an expansion of CF activity within the region. And while such activity will likely place emphasis on operations on sea and in the air, a land component is required as well.

Land Forces and the Arctic

Despite common appearances the Land Force has a considerable legacy of northern deployments and presence in the Arctic dating back to the late nineteenth century. Between 1898 and 1900, the Permanent Force of the Canadian Militia assembled 203 officers and men into a combined arms unit it named the *Yukon Field Force* and dispatched it to assist the North West Mounted Police to maintain law and order in that territory during the Klondike

Gold Rush. Part of the force was eventually withdrawn, with the remainder becoming the first Yukon garrison, and one of the first semi-permanent land force establishments in the Canadian north.

Yet aside from such overt deployments or other temporary exercise and training buildups, the permanent stationing of members of the regular forces has been historically small. Large scale exercises undertaken in 1960s and 1970s declined significantly towards the end of the Cold War. From 1970s onward the Land Force presence has not exceeded 500 personnel stationed there at any given time. This includes an electronic listening station in Alert, and the Northern Area Command headquarters, Yellowknife.

Current Land Force operations in the North are coordinated by the Joint Task Force (North) (JTFN) situated at Yellowknife, Northwest Territories. Formed on 15 May 1970 to assist in maintaining Canadian sovereignty and to support Canadian Forces activities in the North, the JTFN complement includes approximately 150 military and civilian personnel. The Land Force units operating within the JTFN area include elements within JTFN HQ Yellowknife; the HQ Detachment in Whitehorse; HQ Detachment in Iqaluit; 1 Canadian Ranger Patrol Group; Regional Cadet Support Unit (Northern); and the CF Recruiting Team. All, with the exception of Detachment Whitehorse and Detachment Iqaluit, are located in Yellowknife.

The largest force in the region historically has been the Canadian Rangers – a volunteer militia force to protect Canadian arctic sovereignty by its presence and to provide a means of tactical surveillance. It is made up primarily of aboriginals with excellent skills in Northern navigation and survival. These forces are not heavily armed, as most Rangers carry bolt-action hunting rifles or shotguns for personal protection only, and the patrolling range of these forces was limited until recently.

Today, the largest operating unit of JTFN is 1 Canadian Ranger Patrol Group (1 CRPG). It is composed of 58 patrols located in communities all across the North, with a total force of about 1,600 Rangers. Rangers are volunteers, classified as Reservists, who train and patrol, on average, three weeks each year. Regular Force Ranger instructors administer each Ranger patrol.

In addition to the Rangers, Land Force units from the south conduct sovereignty operations in the North. As a result of restructuring, JTFN will be taking the lead and playing a far greater role in these operations in the future.

Current Capability and Future Requirements

To mitigate the potential risks associated with the unpredictability of future threats posed to Canadian security, the Land Force has engaged in a continuous program of combat (or more recently known as – capability) development since the end of the Second World War. Today, Canada's Army is often described as a strategically relevant, tactically decisive, knowledge-based, medium weight, infantry centric force. Its doctrine is based "on the maneuver approach to operations in which shattering the enemy's overall cohesion and will to fight is paramount, and is achieved by targeting his centre of gravity."¹ Today's Army is, in essence, a force conceived and designed to fight and win Canada's conflicts.

The need to operate effectively in the North has shaped the conceptual and doctrinal evolution of Canada's land forces in the past but the Arctic has not served as a central factor in recent decades. The focus on contribution of forces to the defence of Western Europe during the last years of the Cold War, followed by nearly a decade and a half of expeditionary deployments to overseas contingency operations during a period of tremendous political and fiscal constraint, meant that the Army could not sustain specialized units (such as some sort of Arctic brigade) but instead had to support general purpose combat capability that would allow it to operate across the widest possible spectrum of conflict. Despite popular perceptions, this decision served the Land Force well and enabled it to continue evolving during a great period of uncertainty in the Army's future. It also set the stage for transformation, beginning at the end of the 1990s, of which a recent product is a robust and mature capability development process.

Current capability development within the Land Force widely recognizes that future armies must be able to quickly and easily adapt to whatever environment they may find themselves in. Over the last decade alone, the Canadian Army has found itself deployed into every type of terrain, from lush jungles to dry deserts, to country valleys, to snowy mountain ranges. As such the focus of capability development has evolved beyond just the 'where' and instead offers the notion of 'no matter where', i.e. that capabilities will be developed for a full spectrum of operations in complex environments. This guide will certainly allow the future land forces to operate in Arctic environments, both at home and abroad.

The current and likely near future missions of the Land Force in the North will remain largely unchanged. Surveillance and reconnaissance, early warning, patrolling, search and rescue, aid to the civil power, and other emergency and consequence management situations, are likely to constitute the majority of the Land Force's spectrum of operations in the North for the foreseeable future. Yet despite the likelihood of a status quo, and the unlikelihood of

¹ Canadian Army. *Battle Group in Operations*, (draft dated April 2005), 1.

dramatic increases in funding or resources, the Land Forces portion of Arctic security has increased somewhat over the past few years (mainly through Ranger patrols).

A number of other Land Force capabilities and initiatives also exist. An immediate reaction unit is kept available for emergency deployments, and Land Force elements commit resources to various joint units, such as the Joint NBCD Company. Developing capability of selected reserves to assist first responders in coordinated reaction to domestic CBRN emergencies will greatly enhance the region's security. The Land Force is also working on the ability to develop better networking across the region especially in the areas of command and control structures, and a C4ISR-enabled common operating picture. Also under study is a plan directing reserve units to maintain high readiness elements capable of responding on short notice to domestic and humanitarian crises in northern regions. All of these initiatives will provide tangible enhancements to the defence of the region.

However, this does not suggest a major commitment to creating specialized Arctic Land Forces in the near future. Instead general increases in presence, perhaps in the form of territorial defence battalions, or additional Canadian Ranger groups and other reserves, combined with additional facilities for training for Arctic operations, will form the nucleus of current and near future capabilities. Though not a massive investment into the region, it does demonstrate ongoing commitment to Canada's North.

Future efforts must focus on many areas to continue improving overall Land Force capabilities in the North. The region remains a wide area to cover by land; therefore, adaptive and dispersed operations capabilities are essential to success. There must also be some increased focus on domestic operations. Understandably the Army is currently very much focused on expeditionary operations and training for combat, but its experience in operating in complex terrain, and its agility to transition rapidly across the full spectrum of conflict suggests that it will have little problem in conducting peacetime military engagement operations in the North.

Limited personnel resources for northern security also reinforce the necessity for adaptive and dispersed operations capabilities, and forces that must increasingly rely on technology, especially networks, surveillance, and mobility. It will require individual soldiers to not only be trained for the environment, but to also have substantially advanced and robust individual soldier systems and equipment.

Finally, continued Interdepartmental/agency cooperation with a recognized lead agency is a must for effective operational planning. Tasks must be clearly defined, parameters for the employment of CF resources established early, and unified

command executed throughout the duration of any operation. Given the complexity of the operating environment, this last issue is critical to overall success.

Land Operations 2021 and the Arctic

The emerging force employment concept in the Land Force is one that is very conducive to the conduct of operations in the North. Known as adaptive dispersed operations (ADO), this concept will guide land force conflict intervention and peacetime military engagement within the Future Security Environment. The fundamental purpose of the adaptive dispersed operating concept is to defend Canada, at home and abroad, by contributing to the maintenance of long-term stability and security in regions of conflict or distress.

This operating concept envisages an operating environment characterized by complex, multi-dimensional conflict; a non-contiguous dispersed operational framework; and an approach to operating within that environment based on adaptive dispersed land forces conducting simultaneous full spectrum operations. It sees the establishment of a robust networked organization that is conducive to operating in a joint inter-agency multinational and public domain such as the northern region.

The ADO concept recognizes that future areas of operations (AO) such as the Arctic are likely to be large, meaning that the Commander must be able to see and understand the entire AO and exercise command of all forces and resources within it. The Commander must also be able to integrate the five land operational functions (command, sense, act, shield, and sustain) within the AO and to coordinate the actions of his subordinate commanders.

The ADO concept also addresses areas of operations in terms of Areas of Influence, Areas of Interest, and the Information Environment as follows:

- The Area of Influence is the geographical area in which the Commander influences operations with the forces and resources under his command. In a battlespace characterized by adaptive dispersed operations, Areas of Influence, may themselves be non-contiguous, and vary in the degree to which the Commander can exert influence.
- An Area of Interest is that area of concern to the Commander; including Areas of Influence and areas adjacent to it. It extends to the objectives of current or planned operations. Areas of Interest also include areas occupied by adversaries that could jeopardize the accomplishment of the mission and may be regional or

global in scope. Areas of Interest serve to focus Sense and Information Operations (Info Ops) activities at factors outside the AO that may affect the operation, and

- Any AO also includes that part of the Information Environment that encompasses information activity affecting the operation. The Information Environment contains information activities that collect, process, and disseminate information to national and international audiences but are beyond direct military influence. It includes space-based systems that provide data and information. To envision that part of the Information Environment that is within this Battlespace, the Commander determines the information activities that affect his operation and the capabilities of his and opposing command and sense systems.

Land Operations 2021 concepts allocate Land Forces within the AO in terms of purpose. Purpose unifies all elements of the Battlefield Organization by providing a common focus for all actions. Given the non-contiguous nature of any area of operations, commanders will normally organize their forces according to purpose by determining whether each element's operation will be decisive, shaping, or sustaining:

- Decisive operations are those that directly accomplish the task assigned by the higher headquarters and conclusively determine the outcome of the operation or action. While there is only one decisive operation for any given unit or element, the decisive operation may include multiple actions conducted simultaneously throughout the AO. Commanders weight the decisive operation by economizing on forces and resources allocated to shaping operations;
- Shaping operations create and preserve conditions for the success of the decisive operation. Shaping operations include lethal and non-lethal activities conducted throughout the AO. They support the decisive operation by affecting enemy capabilities and forces or by influencing enemy decisions. Shaping operations use all operating functions to neutralize or reduce enemy capabilities;
- Sustaining operations enable shaping and decisive operations by providing combat service support, security, movement control, terrain management, and infrastructure development. Sustaining operations focus on preparing for the next phase of the operation and underwrite the tempo

of the current operation. Sustaining operations assure the ability to take advantage of any opportunity and exploit success.

The complex, multi-dimensional, and continually changing nature of the *Land Operations 2021* Operational Framework requires that Land Forces that are agile, lethal and non-lethal, net-enabled, multipurpose, and full spectrum capable:

- Agile forces are capable of planning and conducting actions faster than the adversary can respond, while maintaining the ability to respond to changes in the adversary's actions faster than he can exploit those changes;
- Lethal and non-lethal forces can engage the adversary with precision and non-precision lethal and non-lethal effects while manoeuvring to positions of advantage and conducting close engagement at the time and place of own choosing;
- Net-enabled forces operate within a network of land forces supported by joint sensor, fire support, and C2 systems linked by voice and data to create a level of situational awareness, mobility, and battlespace effects that combine to overwhelm the adversary's understanding of the battlespace and his ability to react;
- Multi-purpose forces provide a full spectrum capability derived from a combination of integral capability plus the full use of joint and coalition assets. A multi-purpose force includes both medium and light forces. Medium forces exploit technology to achieve the level of lethality and protection formerly provided by heavy forces and light forces trade a measure of lethality and protection for responsiveness, deployability, and mobility. The high level of combat power inherent in a medium force is derived from both its integral capabilities and its ability to make full use of integrated effects. Light forces maximize flexibility and agility in order to compensate for reduced combat power, and can be employed across the spectrum of conflict and continuum of operations in specific roles; and
- Full spectrum forces are capable of participating in all aspects of a Whole of Government Campaign Plan across the entire spectrum of conflict.

Land forces will often be engaged in a range of offensive, defensive, and stability activities across the full spectrum of operations simultaneously. The ability to undertake simultaneous full spectrum actions to include combat operations to establish a stable and secure environment, provision of essential services to persons in need, support to the legitimate governing authority, and support to the economic development of the operating area, will assist in achieving the desired effect on the structures, actions, and beliefs resident within the conflict. Land forces must, therefore, be able to operate effectively – in either a supported or supporting role -- in all “Whole of Government” Campaign Plan Lines of Operation. The extent of Land Force participation in a given Line of Operation will depend on the operation and will vary over time.

Dispersed operations undertaken by geographically dispersed teams will enable the Land Force to dominate a much larger Battlespace and develop a better understanding of that Battlespace through information provided by dispersed teams and sensors. Moreover, dispersed teams -- empowered to take the appropriate action in a timely manner -- provide an effective means of engaging local civilian authorities and interagency representatives involved in the whole of government campaign plan. This approach will prove especially effective in northern regions, where local populations are often dispersed over wide geographic areas, and many challenges to security and stability are often immediate and local in nature.

A key enabler for dispersed operations is the networking of the soldier and junior leader. The Canadian Forces Integrated Soldier System Project aims to deliver a progressively enhanced, integrated soldier system, which will significantly enhance the ability of the Land Force to conduct adaptive dispersed operations. New technologies will both shield the soldier against the extreme environment of the North and the complex terrain it encompasses. It will allow that soldier to maneuver effectively and achieve success where otherwise may not be possible.

Conclusion

Northern security challenges are formidable and may well increase in years ahead. Any plan for the security and defence of the north must include the land component. The nature of the challenges presented by the Arctic validates current approaches advanced by the Land Force and the proposed ADO concept. Thus, a more effective, responsive land element will serve well to address the challenges of our future security in Canada's Arctic.

More complex and expanding areas of operations such as the North are contributing to more situations in which small-dispersed teams have a level of situational awareness, and the

ability to apply decisive effects, such that they can achieve decisive outcomes. The Adaptive Dispersed Operating Concept provides the Land Commander with an enhanced capability to achieve operational and strategic level effects, through the use of dispersed teams empowered to make rapid decisions in order to achieve the Commander's desired end state. New networks, inter-agency relationships, and new technologies focused on the enhancement of the Land Force's primary asset – the soldier – will all contribute to success of Land Forces in the North both today and in the future. More importantly, perhaps, it will ensure that the Land Force is a relevant component of a larger joint and integrated CF, whose mission remains to provide for the defence of Canada and Canadian interests.

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Chapter 8

Force Requirements (Air)

George Macdonald

Abstract

From each scenario presented in Chapter 5, capabilities can be identified which would enable the Canadian Forces to respond to the mission effectively. The air force requirement of each scenario is first reviewed briefly to identify the potential mission requirements. This is followed by a discussion of the capabilities which would likely be needed overall to satisfy the demands of the scenarios. Capabilities addressed include tactical and strategic air mobility, search and rescue, airborne communications, command and control, tactical aviation, surveillance and force projection.

One conclusion which is drawn from the analysis is that the effective employment of air resources is of significant importance in virtually all Northern scenarios. The contribution made by air force personnel and equipment is frequently in a support role but is critical to the success of most missions. It will be incumbent on the Government to support Defence planning efforts to ensure that a reasonable capability is developed and funded.

Résumé

Pour chacun des scénarios présentés au chapitre 5, il est possible d'identifier les capacités qui permettraient aux Forces canadiennes de remplir leur mission. Tout d'abord, les besoins en forces aériennes sont identifiés pour chaque scénario. Cette partie est suivie d'une discussion des capacités d'ensemble qui seraient nécessaires pour satisfaire aux besoins des scénarios. Au nombre des capacités abordées figurent l'aéromobilité tactique et stratégique, la recherche et le sauvetage, les communications, le commandement et le contrôle, l'aviation tactique, la surveillance et la projection de force.

Ressort de l'analyse l'importance de l'emploi efficace des ressources aériennes. Il est vrai que fréquemment la contribution du personnel et du matériel aériens en est une de soutien, mais elle est pour autant cruciale à la réussite de la plupart des missions. Il incombe au gouvernement d'appuyer les efforts de planification de la défense et de veiller au développement et au financement d'une capacité aérienne raisonnable.

Introduction

The scenarios presented in Chapter 5 present a variety of contingencies which are intended to broaden planning horizons to ensure that a full range of capabilities is eventually considered to meet the demands of the Northern operations. They are not meant to be all-inclusive, but should press those involved in requirements planning to the edges of the envelope of potential demands which could be placed on the military in the North. From each scenario, or scenario subset, capabilities can be identified which would enable the Canadian Forces to respond to the mission effectively. These capabilities can then be assessed in more detail by posing some questions regarding them. Queries could be numerous indeed, but a few obvious ones are shown below:

- Is the capability consistent with the policy direction of Government?
- Is it appropriate in scope and 'doability' to fulfill the task at hand?
- How can it best be achieved? How long will this take, and how much will it cost?
- What is its relative priority compared to others?
- Is there already the means to perform some or all of the capability with existing resources?
- Is it affordable in the context of other military requirements?
- What are the long-term implications (support costs, opportunity costs, etc) of acquiring this capability?

Ideally, there will be a number of capabilities which can be identified as essential to respond to more than one scenario, making capability-based planning truly effective. There may not be a perfect capability 'fit' for all contingencies, but there should be widespread applicability to the extent possible for those capabilities acquired.

In this regard, the provision of tactical air transport is a good example to consider. All four scenarios would likely require some form of tactical air transport to respond quickly, and to a remote area. This may be for the purpose of air-dropping supplies, transporting search and rescue technicians or soldiers, delivering personnel and cargo to a nearby airhead, or evacuating victims to safety or medical treatment.

Effort must be taken, therefore to ensure that a tactical transport fleet would have the capability to perform all of these functions, along with the ability to operate into short airfields and in

the harsh Northern environment. Some of these requirements may have to be compromised somewhat to ensure that all are available to the extent necessary. Throughout any force development effort, therefore, a focus must be kept on the need for a variety of requirements to be met with each capability introduced.

Additionally, it must be kept in mind that each capability has many components which all need to be in place if it is to be employed effectively.

To continue with the transport aircraft example, many associate the capability directly with the acquisition of the equipment itself, discounting other elements as ancillary. However, to employ an aircraft fleet effectively, other obvious elements are the personnel needed to operate and maintain the aircraft, the infrastructure – virtual and physical -- to support the fleet, and the necessary maintenance services and spares, not to mention such components as operating procedures and training. Without all of these in place and effective, the capability will not exist, or will be severely limited.

Indeed, in the application of capability based planning, DND has traditionally identified six functional components of any capability, all of which will be represented to a greater or lesser degree.¹

- **Personnel**, including all aspects of personnel management and training, development and oversight.
- **Research and Development**, to include operational research.
- **Infrastructure**, to include the physical infrastructure, but also the 'corporate' organization.
- **Concepts, Doctrine and Collective Training**, which includes the principles and procedures to be employed in carrying out a military activity and the skills to operate in a joint or combined environment.
- **Information Technology Infrastructure**, which addresses the typical C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance) needs.
- **Equipment, Supplies and Services**, which includes the provision and support of the actual hardware.

Clearly, the distribution of these functions will vary dramatically among capabilities. Some have a heavy personnel

¹ Department of National Defence, "Capability Based Planning for the Department of National Defence and the Canadian Forces", 27 May 2002, p. 25-28.

element, while others will be weighted towards equipment or IT component. The air force is generally weighted towards the equipment, which will be the focus of this discussion, mindful that one must always keep in mind the other components.

Scenario Reviews

The air force requirement of each scenario will be reviewed briefly below to identify the potential mission requirements. This will be followed by a discussion of the capabilities which would likely be needed overall to satisfy the demands of the scenarios.

As previously indicated, the scenarios do not cover all eventualities, nor will the capabilities meet every possible scenario. The challenge is to determine achievable, realistic capabilities to cover as many eventualities as possible.

Scenario 1 -- Rescue and Evacuation

This scenario calls for the airlift of assistance to the site and a subsequent mass evacuation of injured passengers. The immediate requirement will be for airlift of medical personnel and supplies to Resolute, along with the transport of the MAJAID (Major Air Disaster) survival equipment and personnel and a response team to deal with the infectious threat.

The capabilities of the *C130 Hercules* and *C17* aircraft would be essential. The need to isolate or quarantine the aircraft themselves and the personnel involved until the tuberculosis threat is addressed would complicate the operation significantly. Ongoing transport support may be needed for some time, in order to deal with the longer term impact on the community.

As a corollary to this scenario, one should consider the more fundamental capability to be able to monitor, police and protect Canadian airspace. While the aircraft in this scenario does not pose a fundamental challenge to Canadian sovereignty or an airborne threat, the need to provide the necessary surveillance and monitoring of air traffic across the North is essential to maintaining control over transiting aircraft. If an aircraft is suspected to be a threat, the ability to intercept, and engage it with fighter aircraft as a last resort, must exist.

Scenario 2 – Terrorist Attack

Much as in a rescue scenario, the air force resource in the most immediate demand will be air transportation – to move emergency response personnel, supplies and equipment to the site and to evacuate victims of the detonation.

Given the proximity of the incident, rotary wing mobility, in the form of *Chinook* helicopters, may be needed. The Canadian Forces NBC (Nuclear, Biological and Chemical) Response Team and the DART (Disaster Assistance Response Team) will be needed as soon as they can be deployed.

Other government departments and agencies will require transport support as well to deal with medical assistance, environmental cleanup, emergency communications, fire control, etc. Military personnel will likely be needed for general security, engineering support, and command and control expertise.

The loss of infrastructure may demand the use of an airborne communications capability and perhaps an airborne command post to coordinate actions on the ground. This function could best be provided by maritime patrol *Aurora* aircraft maintaining a position overhead.

Scenario 3 – Sovereignty Challenge

On the assumption that this scenario could develop into a considerable disaster quickly, the provision of the MAJAID (Major Air Disaster) survival equipment by airdrop from a Hercules would appear to be an appropriate precaution to take.

Also, it would be prudent to consider providing air cover to enable communications, pinpoint the location of the vessel, and coordinate support activity. This would best be done by *Aurora* aircraft which can provide this capability and stay on station for long periods, especially if forward deployed to an airfield in the region, such as Thule, Greenland.

From a sovereignty perspective, the Government would want to make a point that there was no further violation of Canadian territory. Additionally, it would be important for Canadians to demonstrate a national capability to respond competently, to the incident, and others which occur in our territory, leaving no doubt of our ability to do so.

This brings into question the potential for a requirement to project force to remote regions of the North by means of fighter aircraft or maritime patrol aircraft. While it is a given that weapons would never be used in a non-threatening scenario, and certainly not against an ally as is the case here, the need to actually be able to enforce our sovereignty is fundamental to maintaining it.

Scenario 4 – Civil Unrest and Domestic Sabotage

As before, the transport of personnel and equipment by air will probably be required. In this case, there may be limited or no access to regional airports – there may even be an air defence threat at one.

Given the remoteness and limited accessibility, the most effective means to provide support would be through the use of helicopters. *Griffon* aircraft could be flown or transported to the area from Edmonton but the deployment of *Chinook* helicopters, with their much greater load carrying capability, would be much more responsive to the need.

As before, the provision of a communications link and coordination capability could be provided by Aurora aircraft, which may also be helpful in detecting any further threatening activity in the area.

Air Requirements for the North

While some of the more obvious capabilities have been identified in the discussion of the scenarios above, the broader picture must be kept in mind as well. Overall, DND capabilities span the spectrum of tactical to operational to strategic. At each level, several categories or types of capabilities can be identified. Capabilities are needed to provide command, information and intelligence, the ability to actually conduct operations, mobility, protection, sustainment, and generation. In identifying requirements, it is important to keep in mind the full range of capability needed, and whether the appropriate levels, that is, tactical through strategic, are properly addressed.

Tactical and Strategic Air Mobility

An enduring requirement for employing military capability in the North, and supporting other government departments and agencies, is air transport. The capabilities provided by the *C130 Hercules* are ideally suited to this role, given its robustness, flexibility and ability to operate from harsh, austere environments.

The *C17* strategic airlifter has the added advantages of increased capacity, speed, and range, but is less capable in very remote areas. Moreover, the limited *C17* fleet size which Canada can afford, compared to the larger number of *Hercules* available, suggests that the larger aircraft should be restricted to missions where their advantages can be best exploited.

In addition to being able to move cargo and personnel from one airfield to another, there is a clear need to be able to parachute supplies and personnel into sites remote from a suitable airfield. This must be able to be done quickly, safely and accurately, suggesting the need for a high level of readiness to be maintained by well-trained teams of personnel along with an ability to rapidly interpret and disseminate the necessary intelligence and surveillance information to locate an incident site precisely.

Because of the transit distance involved, the response time for aircraft based in the south will frequently be slower than that which could be provided by aircraft located in Northern locations. The provision of a Northern-based utility transport fleet would have the capability to support day-to-day operations and could respond to incidents on very short notice. It would require the ability to operate throughout the North and be able to airdrop personnel and supplies. Transportation of larger loads would still be done by the C130 and C17 fleets.

Search and Rescue

This capability involves the ability to detect and locate an incident site and then to effect a rescue. Detection can best be achieved by the use of space-based relay of aircraft emergency locator transmitter information to southern rescue coordination centres, as it has been done for some time now. This enables a rescue response to a specific site, greatly enhancing the probability of success.

For incidents where no location information is available and a methodical search is necessary, the need for an aircraft with good speed, range and endurance; appropriate navigational equipment; and effective sensors is essential.

Given the limited number of incidents which have traditionally occurred in the North compared to those on each coast and in Southern areas of the country, these fixed-wing assets would be used most effectively if located at their traditional Southern bases. If numbers permit, however, locating them in the North would provide better response, even if less efficient overall. An added advantage would be an increased presence in the North and provision of a secondary utility transport capability.

Airborne Communications, Command and Control

In responding to an incident where the communications infrastructure is non-existent, destroyed or disabled, the most acute requirement is often to coordinate activity through effective communications, command and control (C3).

In such cases, the best way to enable this may well be through the provision of an airborne capability, which could be provided by *Aurora* maritime patrol aircraft. It could respond quickly and independently of the situation on the ground, and could provide a reliable means of communication and a strategic link back to national authorities for assistance and direction. Personnel on board the aircraft could be empowered to take command of the response action if appropriate. The surveillance capabilities of the

aircraft would also be valuable in many scenarios, over land or water.

This C3 capability would be difficult to sustain for very long periods, but for the duration of most crises it would enable the necessary situation awareness and coordination which is so essential, especially in the early stages.

Tactical Aviation

In areas where there are no functional airfields available for transport aircraft, the provision of rotary wing mobility can be critical. Helicopters can go almost anywhere and can provide an extremely effective response capability over short distances. *Griffon* helicopters can be very effective in a tactical situation and are best used for surveillance, reconnaissance, command liaison and movement of smaller loads. Their range and lift capability limits their response time if self-deployed and the size of payload they can deliver. Having said this, they can be made available in relatively large numbers, providing excellent flexibility to respond to several needs simultaneously.

Acquisition of *Chinook* helicopters will provide longer-range and greater payload capability for Northern operations. They can self-deploy to remote sites and can support military or civilian operations by providing excellent capacity to move significant loads of cargo and personnel throughout a response area. Moreover, the fleet size of sixteen aircraft should enable a critical mass of these helicopters to be available for almost any contingency over the Canadian landmass and coastal areas.

Surveillance ¹

As indicated previously, in protecting Canadian sovereignty, it is not sufficient to simply be able to respond to an incident – a nation must be able to provide surveillance over its territory and defend against threats when necessary. For an area of responsibility the size of Canada, the fielding of sensors and interpreting the information provided can be a huge task. It is important, therefore, to employ surveillance assets as effectively as possible, through intelligence-assisted targeting of specific areas, quick response to known or suspected areas of specific interest, and random coverage of all territory from time to time.

This suggests the need for wide-area surveillance, such as that provided by space-based assets, as well as more focussed

¹ Given the treatment of Joint Surveillance Requirements in a chapter of its own, the need for air surveillance is treated very briefly here. This is not intended to suggest that it is not important. Indeed, surveillance of North is a very important part of sovereignty and defence.

capability provided by airborne sensors. Employment of an Aurora aircraft would assist in this, over land or water, and could be kept at a high readiness in order to respond to unexpected requirements. Additionally, search and rescue or utility aircraft – or even other aircraft without specific sensors, through their physical presence -- could have a secondary surveillance role. Finally, the rapidly developing capabilities of uninhabited aerial vehicles (UAV) can support both strategic and tactical surveillance and intelligence gathering.

Force Projection

Ultimately it may be necessary to defend against a threat through a show of force or the actual application of force using aircraft. Admittedly, the threat of a traditional military attack on Canada is negligible in today's environment. However, that from a non-conventional or asymmetric attack, such as that experienced on 9/11, is real and must be addressed.

The ability to deploy fighter aircraft to intercept, and, if necessary, to engage, an airborne threat is necessary. This threat could be a hijacked airliner, a UAV or a cruise missile. Given the extent of Canadian territory, this is a huge challenge. The need for accurate and timely cueing of a potential threat through surveillance and intelligence information is critical to enabling the necessary fighters to be in position in time. The traditional NORAD mission addresses this and will need to be sustained and updated as technology evolves.

Against surface threats, the *CF18* and the *Aurora* both have capabilities which could be employed, recognizing that the likelihood of this ever becoming necessary is remote. Nevertheless, they provide a deterrent to a terrorist organization or other aggressor who might pose a threat to Canada or Canadian sovereignty.

Overall Force Requirements (Air)

The following table summarizes the capabilities necessary to address scenarios for the North. The table is not meant to be all-inclusive, but simply a summary of the points made in the previous discussion. The capabilities identified could certainly be expanded to include other variations of the scenarios if one were to explore the issues in more depth.

With regard to the basing of air assets, there would be a clear advantage to the response time and availability if aircraft were based in Northern locations. While this makes sense for a few fleets, it would result in inefficient use of others. The need, for example, for *C17* support on a regular basis would not warrant forward

basing of such a valuable resource, especially given that the personnel and cargo it could bring to an incident are most likely sourced from Southern Canada. On the other hand, the basing of a utility transport (with a secondary search and rescue, and possibly surveillance, role) fleet in the North makes sense, given the anticipated ongoing requirement.

<div>Scenario</div> <div>Capabilities</div>	1. Rescue and evacuation	2. Terrorist Attack	3. Sovereignty Challenge	4. Civil Unrest and Domestic Sabotage	Other Potential Sovereignty Missions
Tactical and Strategic Air Mobility	✓	✓	✓	✓	✓
Search and Rescue	✓		✓		
Airborne Communication Command and Control		✓	✓		
Tactical Aviation		✓		✓	✓
Surveillance	✓	✓	✓	✓	✓
Force Projection			✓ ¹	✓	✓

Table 1 – Potential Employment of Air Capabilities

One conclusion, which is very clear from this analysis, is that the effective employment of air resources is of significant importance in virtually all Northern scenarios. The contribution made by air force personnel and equipment is frequently in a support role but is critical to the success of most missions. It will be incumbent on the Government to support Defence planning efforts to ensure that a reasonable capability is developed and funded.

¹ While this capability is judged to be necessary to ultimately protect sovereignty, it is not suggested here that it weapons would be contemplated for employment in this benign scenario involving an ally.

Summary of Requirements and Conclusions

Paul Manson

In their reading of the preceding chapters, readers will have been struck by the recurring theme that certain key factors will influence Canada's future approach to the Arctic dimension of national security. In a nutshell, these are:

1. environmental change, related to global warming;
2. the emergence of terrorism as a serious physical threat to North American security;
3. past indifference to the need for Canadian Forces activity in our Arctic regions; and
4. concerns about challenges to Canadian sovereign ownership and control of our Arctic spaces – maritime, territorial and air.

Recent pronouncements by both Liberal and Conservative governments indicate that these changing circumstances are recognized, and that they call for a co-ordinated national response. The message seems to be that Canada needs to get its Arctic act together. But important questions remain. What is to be done? When, how, and by whom? And at what cost? With the exception of this last question (about which more later), the authors of this volume have delved into the subject in enough detail to stimulate further analysis and – it is hoped – action.

It is interesting to note the extent to which the subjects of security and sovereignty are so closely intertwined throughout the various chapters, sometimes to the extent that little or no distinction is made between the two. Although at first glance this may seem anomalous, it is not necessarily inappropriate. A nation which is able to defend its territory in a military sense thereby strengthens its sovereign claim. Likewise, clear assertions of sovereignty, accompanied by the exercise of control (over activity on land, navigable waterways, and overhead airspace) contribute to better security.

Beyond matters of sovereignty and defence, additional significant challenges will be brought about as a consequence of the anticipated changes in Canada's Arctic regions. As Rob Huebert points out in the opening chapter, increased commercial activity, stimulating a growth in maritime traffic, in air travel (both overflight and internal), and even in road travel, will impose new demands on the search and rescue system and the nation's ability to respond to disasters, both natural and man-made. These and other exigencies will be complicated by the huge distances, the severe climate, the

inhospitable terrain, and the sparse population of the Canadian Arctic.

Canada is by no means alone in its renewed focus on the North. The region's changing strategic situation has garnered the attention of other Arctic nations. In Chapters 3 and 4, James Kraska and Tómas Brynjólfsson present valuable national viewpoints from the United States and Iceland respectively. Their presentations reveal a remarkable commonality of interests and concerns. James Kraska's chapter also presents with great clarity the American position in regard to the North West Passage and Canada's claims in that regard. This ties in very well with Andrea Charron's argument, in Chapter 2, for an interesting and rather different approach by Canada to this longstanding policy divergence between Canada and the U.S. over the North West Passage.

The use of scenarios as an analytical tool is a commonly-used and respected methodology. Its great value, of course, lies in the ability to reduce an infinite spectrum of future possibilities into a manageable set of cases. Gary Rice, in Chapter 5, has done this by setting out four scenarios which, arguably, cover the waterfront, so to speak. Certainly, the four that he has devised embrace a range of operational situations which together represent -- at least in terms of the needed resources -- a realistic set of future possibilities. These should be useful to planners in federal government departments and agencies, especially the Department of National Defence, in preparing detailed policy, resource requirements, procurement programs, organizational structures, and operating procedures for the North.

Demonstrating the utility of Gary Rice's scenarios, George Macdonald has in fact used them directly in his Chapter 8 analysis of air requirements emanating from a changing Arctic.

Without resorting to a gratuitous repetition of our authors' individual conclusions, I simply wish to summarize these in a way that presents a high-level, integrated picture of what Canada could, should or can do to ensure the security of its Arctic regions. The emphasis, in keeping with our stated intent, is on military requirements. As always, however, these cannot be considered in isolation.

Here are the principal conclusions that can be drawn.

Navy. Several of our authors make the point that the Navy's contribution to Arctic security is limited by its marginal ability to sail into northern waters. To be sure, the observed shrinking of the Arctic ice-pack will allow further penetrations than heretofore, but a strong case is made for the acquisition of naval vessels that can operate in fairly heavy ice. This does not mean icebreakers for the Navy; these are and should remain the responsibility of the Canadian Coast Guard. In his analysis of naval requirements,

however, Kyle Christensen argues that the Canadian Navy should acquire an Arctic Patrol Ship having an enhanced ice capability. Denmark and Norway currently operate such ships. The APS is seen as a replacement for the existing and relatively new Maritime Coastal Defence Vessels. Its appearance in the Navy's inventory cannot therefore be expected for some years. The APS's eventual entry into service would substantially expand Canada's naval presence, year-round, in the Arctic, with positive implications for sovereignty, disaster response, and defence against unwanted incursions.

Army. There is today an almost total absence of land forces north of 60 degrees, apart from the occasional training exercise and the dedicated, but tiny and poorly-equipped, Canadian Rangers. To fill this void in a way that would meet the operational demands of a changing Arctic, the Army would need at least one permanent northern base, with stationed forces that are specifically trained and equipped for northern operations. Given the distances involved, the utility of Army forces (for example, in responding to scenarios of the type described in Chapter 5) can be no better than the availability of adequate transportation resources, which usually will mean aircraft. Gizewski and Godefroy offer a thoroughly comprehensive picture in Chapter 7 of the Army's future needs for effective Arctic operations.

Air Force. Fortunately, existing and planned air fleets offer a good measure of mobility for land forces in the Arctic, notably with the purchase of C-17 strategic airlifters, C-130J tactical transports, and Chinook medium lift helicopters. Furthermore, the soon-to-be-acquired fixed wing Search and Rescue transport aircraft will add to the total transport capability, in addition to their primary role. Fleets currently in service, especially the CF-18 Hornets and the CP-140 Auroras, already provide an important military capability for sovereignty patrol and rapid response to a broad range of Arctic incidents. The Griffon tactical helicopter fleet can also be used in limited circumstances. Adding to this impressive array will be the reconnaissance capability afforded by UAVs. The main challenge facing Air Force planners and operational staffs will be the judicious allocation of these relatively small air fleets, all of which will likely have concurrent roles in other geographical regions, both domestic and global.

Joint Operations. One conclusion which stands out quite starkly is the need for a full measure of "jointness" in Arctic operations. To an extent rarely seen in past Canadian military operations, there will be a vital requirement for the services to plan and work together. The Arctic is a tough operating environment, after all. To meet its demands, there has to be a logical organizational framework.

Interoperability of equipment and people is essential. There must be a joint approach to planning, procurement, training, and field operations. Moreover, the concept of jointness must extend beyond the military, into a fully co-operative working arrangement with other government departments, agencies, and, indeed, territorial and provincial governments. Only then could Canada's limited resources attain their full potential in what would usually be difficult operating circumstances. Because, for obvious reasons, the military will be the "first responder" to critical occurrences in the north and, as Brian MacDonald points out in his Introduction, they will often be acting in the legal context of "aid to the civil power" or "assistance to the civil authority", the legal ramifications of the Canadian Forces' lead role will need to be carefully worked out. Given the Arctic's unforgiving climate, fast reaction is vital to the saving of lives, especially in responding to disasters "North of Sixty." A heavy price could be paid for bureaucratic delays.

Infrastructure. Implicit in most of the above chapters is an assumption that northern facilities will have to be built or expanded to accommodate a pretty substantial increase in military and other government activity. Indeed, the Conservatives, in a pre-election statement, called for the construction of a deep water port, a sensor system, and an army training base. As for airfields, three CF-18 Forward Operating Locations and several other runway facilities already exist as far north as Alert, near the North Pole. Consideration will have to be given to an upgrading of these and to the construction of new airfields in the Arctic Archipelago, to cater to increased flight activity and to allow rapid response to major disasters and other critical situations. Communications will also have to be developed in concert with the forecast increase in Arctic activity. Existing and planned government and commercial systems will provide an impressive capability, but here again interoperability will have to be ensured. It should be mentioned that the Canadian Forces signals monitoring unit at Alert will be an important element in the High Arctic system.

Cost. In this relatively concise study cost has barely been touched on, but it is a spectre which nevertheless lurks in every corner of every page. There is a price to pay for every additional piece of equipment, for each new facility, and for all the planning and training that must go into providing new capabilities in the North. These will not come cheaply, especially in the purchase and operation of the big-ticket items like ships, aircraft, bases, and seaports. As always, government planners must weigh the costs and benefits of each given expenditure against future operational imperatives. Obviously, not everything can be done in the near term. Some capabilities may be deemed unaffordable. Fortunately,

however, much of the expense can be spread out over many years. The Arctic ice is not going to disappear overnight. Average temperatures are not going to climb rapidly. Commercial sea and air traffic will probably build up quite gradually. But a caution is in order. Two threats bear careful attention because of their potential immediacy. First, there is the possibility of a sudden and severe energy shortage in the western world and, second, there is the prospect of terrorist infiltration through the North. Both are possible consequences of the larger global conflict that dominates the headlines these days, and either eventuality could very well lead to a rapid increase in northern activity, both commercial and military. Although neither may present a particularly high probability in the shorter term, Canada dare not ignore them. Whereas other major capital investments may well be delayed or spread out over the years, these more immediate threats deserve careful attention and possibly early investment in specific defensive measures.

Finally, the point needs to be made again that this study, although it presents a considered overview of what needs to be done by Canada to bring the Arctic frontier into the mainstream of our defence planning and posture, is only a start. Its principal value, surely, is the message that important changes are taking place in our North which demand a national response. Scholars, analysts, planners, and government officials need to follow up constructively, and they need to start now.

Sommaire des besoins et conclusions

Paul Manson

À la lecture des chapitres qui précèdent, les lecteurs auront été frappés par le thème récurrent à l'effet que certains facteurs clés influenceront l'approche future que le Canada adoptera à l'égard de la dimension arctique de la sécurité nationale. En bref, ce sont :

1. le changement environnemental, en rapport avec le réchauffement de la planète ;
2. l'émergence du terrorisme comme grave menace à la sécurité nord-américaine ;
3. l'indifférence passée vis-à-vis de la nécessité d'une activité des Forces canadiennes dans nos régions arctiques ; et
4. les préoccupations concernant les défis qui s'opposent à la possession et au contrôle souverains du Canada sur nos espaces arctiques – maritime, territorial et aérien.

Les prises de position récentes, tant du gouvernement libéral que du gouvernement conservateur, indiquent qu'on reconnaît ces circonstances changeantes et que celles-ci appellent une réponse nationale coordonnée. Le message semble être que le Canada a besoin de s'organiser pour ce qu'il fait dans l'Arctique. Mais d'importantes questions demeurent. Que faut-il faire ? Quand, comment et par qui ? Et à quel coût ? À l'exception de cette dernière question (dont il sera question plus loin), les auteurs de ce volume ont fouillé ce sujet avec assez de détails pour stimuler une analyse plus poussée et, on l'espère, stimuler l'action.

Il est intéressant de noter dans quelle mesure les sujets de la sécurité et de la souveraineté sont étroitement entrelacés à travers les divers chapitres, parfois dans la mesure où on ne fait que peu ou pas de distinction entre les deux idées. Une nation qui est capable de défendre son territoire au sens militaire renforce par là son titre à la souveraineté. Pareillement, les affirmations claires de souveraineté, accompagnées par l'exercice du contrôle (sur l'activité exercée sur terre, sur les eaux navigables et dans l'espace aérien) contribuent à une meilleure sécurité.

Au-delà des questions de sécurité et de défense, des défis supplémentaires significatifs seront soulevés comme conséquence des changements attendus dans les régions arctiques du Canada. Comme le souligne Rob Huebert dans le chapitre d'ouverture, l'augmentation de l'activité commerciale, la stimulation de la croissance du trafic maritime, des voyages en avion (tant le survol que les vols intérieurs), et même des voyages routiers, imposeront de nouvelles demandes sur le système de recherche et sauvetage et sur la capacité du pays de répondre aux catastrophes, naturelles et d'origine humaine. Ces exigences et d'autres seront compliquées par l'énormité des distances, la sévérité du climat, l'inhospitalité du terrain et l'éparpillement de la population vivant dans l'Arctique canadien.

Le Canada est loin d'être seul à porter une attention renouvelée au Nord. La situation stratégique changeante de la région a attiré l'attention d'autres nations arctiques. Dans les chapitres 3 et 4, James Kraska et Tómas Brynjólfsson présentent des points de vue nationaux précieux en provenance, respectivement, des États-Unis et de l'Islande. Leurs présentations révèlent une remarquable communauté d'intérêts et de préoccupations. Le chapitre de James Kraska présente également très clairement la position des États-Unis vis-à-vis le Passage du nord-ouest et les revendications du Canada à cet égard. On rejoint ici l'argument d'Andrea Charron, dans le chapitre 2, en faveur d'une approche intéressante et plutôt différente de la part du Canada concernant cette divergence de politique qui oppose depuis longtemps le Canada et les États-Unis sur la question du Passage du nord-ouest.

L'utilisation de scénarios comme outil analytique est une méthodologie d'usage courant et respecté. Sa grande valeur, bien sûr, repose sur sa capacité de réduire un spectre infini de possibilités futures à un ensemble fini de cas. C'est ce qu'a fait le Gary Rice, au chapitre 5, en établissant quatre scénarios qui, pourrait-on dire, couvrent le front d'eau, pour ainsi dire. Certainement, les quatre scénarios qu'il a établis couvrent une gamme de situations opérationnelles qui, ensemble, représentent, au moins sous l'angle des ressources nécessaires, un ensemble réaliste de possibilités futures. Ces hypothèses devraient être utiles aux planificateurs des ministères et organismes fédéraux, particulièrement au Ministère de la Défense nationale, dans la préparation de politiques détaillées, de besoins en ressources, de programmes d'acquisition, de structures organisationnelles et de procédures opérationnelles pour le Nord.

En démontrant l'utilité des scénarios du Gary Rice, George Macdonald les a, en fait, utilisés directement au chapitre 8 dans son analyse des besoins de la force aérienne émanant d'une région Arctique en voie de changement.

Sans m'en remettre à une répétition gratuite des conclusions individuelles de chaque auteur, je veux simplement résumer celles-ci d'une façon qui représente une image intégrée de haut niveau de ce que le Canada pourrait, devrait ou peut faire pour assurer la sécurité de ses régions arctiques. L'accent, dans le sens de l'intention que nous avons énoncée, est mis sur les besoins militaires. Mais, comme toujours, ceux-ci ne peuvent être considérés de façon isolée.

Voici les principales conclusions qu'on peut tirer.

La Marine. Plusieurs de nos auteurs soulèvent la question à l'effet que la contribution de la Marine à la sécurité est limitée par sa capacité marginale à naviguer dans les eaux nordiques. Bien sûr, le rétrécissement observé de la banquise arctique permettra des pénétrations plus avancées que jamais auparavant, mais ce fait plaide beaucoup en faveur de l'acquisition de vaisseaux navals qui peuvent fonctionner dans une glace assez épaisse. Cela ne veut pas dire des brise-glace pour la Marine ; ces derniers sont et devraient demeurer la responsabilité de la Garde côtière canadienne. Dans cette analyse des besoins navals, cependant, Kyle Christensen prétend que la Marine canadienne devrait faire l'acquisition d'un bateau patrouille arctique (BPA) doté d'une plus grande capacité. Le Danemark et la Norvège exploitent présentement de tels bateaux. Le BPA est perçu comme un remplacement des actuels navires de défense côtière, relativement nouveaux. On ne peut donc s'attendre à ce qu'ils apparaissent à l'inventaire de la Marine avant quelques années. L'arrivée en service éventuelle des BPA augmenterait substantiellement la présence navale du Canada à l'année longue

dans l'Arctique, avec des implications positives pour la souveraineté, la réponse aux catastrophes et la défense contre des intrusions indésirables.

L'Armée. Aujourd'hui, il y a une absence presque totale de forces terrestres au nord du 60e parallèle, à part l'exercice occasionnel d'entraînement et les dévoués Rangers canadiens, peu nombreux et mal équipés. Pour combler ce vide d'une façon qui répondrait aux exigences opérationnelles d'un Arctique en état de changement, l'Armée aurait besoin d'au moins une base nordique permanente, avec des forces en poste spécifiquement entraînées et équipées pour les opérations nordiques. Étant donné les distances en cause, l'utilité des forces de l'Armée (par exemple, en réponse à des scénarios du type décrit au chapitre 5) ne peut être supérieure à la disponibilité de ressources de transports adéquates, ce qui veut habituellement dire des avions. Gizweski et Godefroy présentent une image tout à fait complète, au chapitre 7, des besoins futurs de l'Armée pour des opérations efficaces dans l'Arctique.

L'Aviation. Heureusement, les flottes aériennes actuelles et prévues offrent une bonne mesure de mobilité pour les forces terrestres dans l'Arctique, particulièrement avec l'achat des avions de transport stratégiques C-17, les transports tactiques C-130J et les hélicoptères Chinook à moyenne levée. En plus, l'avion de transport de recherche et sauvetage à ailes fixes qu'on s'apprête à acheter viendra ajouter à la capacité totale de transport, en plus de son rôle primaire. Les flottes actuellement en service, particulièrement les Hornets CF-18 et les Auroras CP-140, offrent déjà une importante capacité militaire pour les patrouilles de souveraineté et une réponse rapide à une gamme étendue d'incidents pouvant se produire dans l'Arctique. La flotte d'hélicoptères tactiques Griffon peut également servir dans des circonstances limitées. À cette gamme impressionnante vont s'ajouter la capacité de reconnaissance offerte par les UAV. Le principal défi que doivent affronter les planificateurs et le personnel opérationnel de l'Aviation sera l'allocation judicieuse de ces flottes aériennes relativement petites, qui toutes auront probablement des rôles concurrents dans d'autres régions géographiques, à la fois au pays et ailleurs dans le monde.

Opérations interarmées. Une conclusion qui ressort crûment, c'est la nécessité d'une mesure complète de « relations interarmées » dans les opérations qui se dérouleraient en Arctique. Dans une mesure rarement vue dans les opérations militaires canadiennes du passé, il sera vital que les services planifient et travaillent ensemble. L'Arctique est un environnement opérationnel exigeant, après tout. Pour répondre à ses exigences, il faut qu'il existe un cadre

organisationnel logique. L'interopérabilité de l'équipement et du personnel est essentielle. Il doit y avoir une façon d'aborder conjointement la planification, les acquisitions, l'entraînement et les opérations sur le terrain. De plus, le concept des « opérations interarmées » doit s'étendre au-delà du domaine militaire, dans un arrangement de travail pleinement coopératif avec d'autres ministères et organismes du gouvernement et, bien sûr, avec les gouvernements territoriaux et provinciaux. C'est seulement alors que les ressources limitées du Canada pourront atteindre leur plein potentiel dans ce qui pourrait être des circonstances opérationnelles difficiles. Pour des raisons évidentes, les forces militaires vont être les « premières à répondre » aux occurrences critiques dans le Nord et parce que, comme l'a fait remarquer Brian McDonald dans son introduction, elles vont souvent agir dans le contexte juridique d'une « aide au pouvoir civil » ou d'une « assistance à l'autorité civile », les ramifications juridiques du rôle de chef de file des Forces canadiennes devront être travaillées avec soin. Étant donné le climat impitoyable de l'Arctique, une réaction rapide est vitale pour sauver des vies, particulièrement dans une réponse à des catastrophes ayant lieu au « Nord du 60ème ». Les délais bureaucratiques pourraient se solder par un prix très cher.

L'infrastructure. Ce qui est implicite dans la plupart des chapitres qui précèdent, c'est une hypothèse que des installations nordiques vont devoir être construites ou agrandies pour accueillir une augmentation assez substantielle de l'activité militaire et autres activités gouvernementales. Bien sûr, les Conservateurs ont réclamé, dans un énoncé préélectoral, la construction d'un port en eau profonde, d'un système de détection, et d'une base d'entraînement de l'armée. Pour ce qui est des terrains d'aviation, trois emplacements d'opérations avancés pour les CF-18 et plusieurs autres installations de pistes d'atterrissage existent déjà aussi loin au nord que Alert, près du pôle Nord. Il faudra qu'on songe à l'amélioration de ces dispositifs et à la construction de nouveaux terrains d'aviation dans l'archipel de l'Arctique, pour desservir l'accroissement de l'activité des vols et pour permettre une réponse rapide dans des cas de catastrophes majeures et d'autres situations critiques. Les communications devront aussi être développées de concert avec l'augmentation prévue dans l'activité arctique. Les systèmes gouvernementaux et commerciaux existants et planifiés vont fournir une capacité impressionnante, mais, ici aussi, il faudra qu'on s'assure d'une interopérabilité. Il faudrait mentionner que l'unité de surveillance des transmissions des Forces canadiennes, à Alert, sera un élément important dans le système de l'Extrême-Arctique.

Les coûts. Dans cette étude relativement concise, on a à peine touché à l'élément coût, mais c'est un spectre qui néanmoins plane sur tous les recoins de chaque page. Il y a un prix à payer pour chaque pièce d'équipement supplémentaire, pour chaque nouvelle installation et pour toute la planification et tout l'entraînement qui doit faire partie de l'offre de nouvelles capacités dans le Nord. Ces éléments ne seront pas bon marché, particulièrement dans l'achat et l'exploitation d'articles chers comme des bateaux, des avions, des bases et des ports de mer. Comme toujours, les planificateurs du gouvernement doivent peser les coûts et les bénéfices de chaque dépense donnée en regard de chacun des impératifs opérationnels futurs. Évidemment, tout ne peut pas être fait dans l'immédiat. Certaines capacités peuvent être jugées inabordables. Mais, heureusement, une grande partie des dépenses peut être étendue sur plusieurs années. La glace de l'Arctique ne va pas disparaître du jour au lendemain. Les températures moyennes ne vont pas grimper rapidement. Le trafic commercial maritime et aérien va probablement s'intensifier plutôt graduellement. Mais il y a lieu d'être prudent. Deux menaces méritent qu'on y fasse bien attention à cause de leur imminence possible. D'abord, il y a la possibilité d'une pénurie soudaine et sévère d'énergie dans le monde occidental et, en second lieu, il y a la perspective d'une infiltration terroriste par le Nord. Les deux possibilités sont les conséquences possibles du conflit mondial plus étendu qui domine les manchettes ces jours-ci, et l'une et l'autre éventualité pourrait bien mener à une augmentation rapide de l'activité nordique, tant commerciale que militaire. Même si aucune d'elles ne puisse présenter une probabilité particulièrement élevée à court terme, le Canada ne peut pas risquer de les ignorer. Tandis que d'autres dépenses majeures en capital pourraient bien être retardées ou réparties sur plusieurs années, ces menaces plus immédiates méritent une attention étroite et, peut-être, des investissements à court terme dans des mesures défensives spécifiques.

En terminant, il faut souligner à nouveau que cette étude, même si elle présente un aperçu général, s'est penchée sur ce qui doit être fait par le Canada pour amener la frontière arctique dans le courant central de notre planification et de notre position de défense, et ce n'est qu'un début. Sa valeur principale, c'est sûr, est le message que des changements importants sont en train de se produire dans notre Nord, et ils nécessitent une réponse nationale. Les chercheurs, les analystes, les planificateurs et les représentants du gouvernement ont besoin d'exercer un suivi constructif, et c'est tout de suite qu'ils doivent commencer.

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Brian MacDonald (Colonel, retired) is a graduate of the Royal Military College and York University. He is a prominent media commentator on security and defence issues, counting hundreds of television, radio and speaking appearances. His international conference papers have included: Kings and Emmanuel Colleges of Cambridge University; the German Armed Forces University, Munich; the Beijing Institute for International Strategic Studies; the Shanghai Institute for International Studies; and the Atlantic Treaty Association in Budapest, Copenhagen, Edinburgh, Paris, Slovenia, and Washington. He has edited seventeen books and authored one, *Military Spending in Developing Countries: How Much Is Too Much?* (Carleton University Press, 1997).

George Macdonald (Lieutenant-General, retired) joined the Air Force in 1966. Upon graduation from the University of Calgary with an engineering degree, he underwent pilot training and spent several years

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Paul Manson (General, retired) served in the RCAF and Canadian Forces for 38 years. A fighter pilot, he commanded at all levels of the Air Force. He was Chief of the Defence Staff from 1986 to 1989. Following retirement from the military General Manson was president of a large aerospace company for eight years. During this period he served a term as the Chairman of the Aerospace Industries Association of Canada. He is also a past Chairman of Canada's Aviation Hall of Fame. As a Trustee of the Canadian Museum of Civilization from 2000 to 2006, he chaired the Canadian War Museum Committee. The author of numerous articles on defence issues, he is the current President of the Conference of Defence Associations Institute, in which capacity he has frequently appeared as a commentator on national television and radio. General Manson is a Commander of the Order of Military Merit and Commander of the U.S. Legion of Merit. In 2002 he became an Officer of the Order of Canada.

Gary H. Rice, (Colonel, Ret'd) served in the Canadian Army Active, Regular and Reserve Forces, RCCS, RCAMC, and the Canadian Forces in regimental, training, operations and staff appointments in Canada, Norway and North West Europe, advancing from private to warrant officer to colonel. A citizen of Canada and the United States he is a graduate of the first Canadian Forces Command and Staff College course, the United States Inter-Agency Institute Advanced Training Program, a member of the Council of Canadians for Security in the 21st Century, the Association of the United States Army, and a former Deputy Commandant and Chief Instructor, CFMS Training Centre, CO 1st Canadian Field Hospital, Senior Administrator, National Defence Medical Centre, Director Medical Administration and Resources, and Head of Medical Operations and Plans, NDHQ."

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Andrea Charron, de Waterloo en Ontario, commence sa troisième année au programme de doctorat des études de la conduite de la guerre du Collège militaire royal du Canada. Détenant un baccalauréat en sciences avec très grande distinction de l'université Queen's, une maîtrise en relations publiques de l'université Dalhousie et une maîtrise en arts dans le domaine des relations internationales de l'université Webster, campus Leiden au Pays-Bas, Andrea possède une formation académique des plus éclectiques. En tant que participante au sein du programme de stagiaire en gestion du gouvernement fédéral, Andrea a oeuvré comme aviseuse politique pour l'Agence de revenu du Canada, l'Agence des services frontaliers du Canada et le Bureau du conseil privé. Les domaines académiques d'intérêt d'Andrea incluent: le droit international, les organismes internationaux et la politique étrangère canadienne et américaine.

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Rob Huebert est professeur agrégé de sciences politiques et codirecteur du Centre des études militaires et stratégiques de l'Université de Calgary. Il est titulaire d'un baccalauréat spécialisé en études politiques de l'Université du Manitoba, d'une maîtrise en affaires internationales de l'Université Carleton, et d'un doctorat en sciences politiques de l'Université Dalhousie. Ses principaux intérêts de recherche portent sur la sécurité dans l'Arctique, la sécurité maritime et la politique canadienne en matière de sécurité. Il a publié des articles dans les revues suivantes : *International Journal*, *Journal of Canadian Foreign Policy*, *Isuma* – *Revue canadienne de recherche sur les politiques et Politique maritime*. Il paraît fréquemment dans les médias comme commentateur sur la sécurité internationale et les enjeux de l'Arctique tels qu'ils s'appliquent au Canada. Il est codirecteur de la rédaction d'ouvrages sur l'utilisation d'imagerie satellitaire commerciale pour les besoins de sécurité canadienne, et sur les ressources renouvelables et l'exploitation des océans dans le Nord canadien. Il travaille présentement à des ouvrages sur la souveraineté et la sécurité de l'Arctique canadien.

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stratégiques internationales de Beijing, l'Institut d'études internationales de Shanghai, et l'Association du traité de l'Atlantique, à Budapest, Copenhague, Édimbourg, Paris, en Slovénie et à Washington. Jusqu'à maintenant, il a été rédacteur de seize livres et auteur d'un, intitulé *Military Spending in Developing Countries: How Much Is Too Much?* (Carleton University Press, 1997).

La dernière affectation militaire du lgén (ret.) **George Macdonald** a été celle de vice-chef d'état-major de la Défense, Quartier général de la Défense nationale, à Ottawa. Il était responsable de l'affectation des ressources et de la planification stratégique pour le ministère de la Défense nationale et était, au besoin, le remplaçant désigné du Chef d'état-major de la Défense. Il s'est engagé dans les forces aériennes en 1966. Ayant obtenu son diplôme en génie de l'Université de Calgary, il a fait sa formation de pilote d'avion et a passé de nombreuses années à piloter des avions de chasse. Il a obtenu des postes de commandement au niveau de l'escadron, de l'escadre et de la division et il a occupé des postes d'état-major. Avant de devenir VCEMD en septembre 2001, il a été, pendant trois ans, commandant en chef adjoint du Commandement de la défense aérospatiale de l'Amérique du Nord à Colorado Springs. M. Macdonald a pris sa retraite des Forces canadiennes en septembre 2004 et il est maintenant associé de la firme CFN Consultants à Ottawa, qui traite des enjeux de défense et de sécurité.

Paul Manson (général retraité) a servi 38 ans dans l'ARC et les Forces canadiennes. Pilote de chasse, il a occupé tous les postes de commandement de la Force aérienne. De 1986 à 1989, il a été Chef d'état-major de la Défense. Après sa retraite de la vie militaire, il a exercé pendant huit ans les fonctions de président d'une importante entreprise aérospatiale. Durant cette période, il a servi un mandat de président du conseil de l'Association des industries aérospatiales du Canada. Il est également ancien président du conseil du Panthéon de l'aviation du Canada. En tant qu'administrateur de 2000 à 2006 du Musée canadien des civilisations, il a présidé le Comité du Musée canadien de la guerre. Auteur de nombreux articles sur le sujet de la défense, il est président de l'Institut de la Conférence des associations de la défense, fonctions qui lui permettent de paraître souvent comme commentateur à la télévision et à la radio nationales. Le général Manson est commandeur de l'Ordre du mérite militaire et commandeur de la Légion du Mérite aux États-Unis. En 2002, il a été nommé Officier de l'Ordre du Canada

Le colonel (ret.) **Gary H. Rice**, a servi dans l'armée canadienne active, dans la Force régulière et dans la Force de réserve, Centres de coordination du sauvetage, Corps de santé royal canadien, et dans les Forces canadiennes, pour des affectations régimentaires, de formation, d'opérations et d'état-major au Canada, en Norvège et dans le Nord-Ouest de l'Europe, progressant du niveau de soldat à celui d'adjudant, puis à celui de colonel. Un ressortissant du Canada et des États-Unis, il

est diplômé du premier cours du Collège d'état-major et de commandement des Forces canadiennes, du programme de formation avancée de l'United States Inter-Agency Institute; il est également membre du Conseil des Canadiens pour la sécurité au XXI^e siècle, de l'Association de l'armée américaine et ancien commandant adjoint et instructeur-chef, Centre de formation du SSFC, commandant du 1^{er} Hôpital de campagne du Canada, administrateur supérieur du Centre médical de la Défense nationale, directeur de l'administration et des ressources médicales, et chef des opérations et des plans médicaux, QGDN.

The background of the cover is a photograph of the Canadian War Memorial in Ottawa. It features two tall, slender stone pylons with intricate carvings of soldiers and figures. A person in a red jacket is standing on the steps at the base of the pylons, providing a sense of scale. The sky is a clear, deep blue.

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Brian MacDonald

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