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# Will the Canadian Navy be "Ready aye Ready" for the Arctic dimension of Canada First in 2030?

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**ABSTRACT**

This essay argues that with a combination of appropriate governmental support and the current strategic naval vision, the Navy will be ready to fulfill the tasks requiring naval presence in the North in 2030. The text acknowledges the warming climate trend and its impact on the ice-covered area of the Arctic. It also recognizes the requirement to plan now to allow for new capabilities to be operational by then. There is, however, recognition that access to the Northwest Passage will remain limited and treacherous before the middle of the 21st Century due to frequent ice conditions. Meanwhile, it is likely that large portions of the Arctic may be free of ice for much of the year in 2030. The environment conditions review concludes that as the ice-cap continues to melt and business continues to grow over the next decades, there will be a proportional increased need for the Navy to operate in northern latitudes. After a review of the anticipated Naval tasks in 2030, it is deducted that the current naval functions included in strategic documents will remain valid for the foreseeable future. As such, without over-reacting now, an incremental increase in Arctic presence is needed over the next decades. To prepare for this eventuality, a level of ice capability will be included in future naval vessels. Overall, the paper supports the projected Fleet mix for 2025 and some of the current government plans to add capabilities in the North, which will make the Navy ready for the northern dimension in 2030.

## INTRODUCTION

By now, the expression "global warming" and its effects worldwide will resonate with everyone. Indeed, in recent years, weather patterns have been intense and difficult to rationalize. Likewise, Canada's own weather has been affected by the phenomena, but nowhere has this warming trend been felt more in Canada than in the high North. Undeniable evidence has shown that the ice cap is melting at an increasing rate due to rising temperatures, which is having a significant impact on much of the activities in the North.[1] Everyone with a stake in the area has developed an insatiable thirst for scientific forecasts on the rate of change in the Arctic. Since the Canadian Forces (CF) is one of these stakeholders, tasked to protect Canada's interests at sea, it is also adapting and planning for the future northern reality.

It is no surprise, therefore, that much interest exists in determining whether Canada will be ready for a warmer North by taking appropriate measures now to prepare for the future. Given such a broad subject, it would be ambitious to discuss all factors influencing this immense region adequately in one short text. Therefore, this paper will focus only on the northern maritime domain. Specifically, the aim of this paper is to determine whether the Canadian Navy will be ready to deal with the reality of year 2030 in the North. That year was selected as it represents an approximate period when military assets engaged in northern military activities will have been in service for few years and when scientific models start to become less reliable.

The text first provides a summary of the climate changes in the Canadian Arctic to establish the recently acknowledged trend. Along with this summary, the related economic and security issues are introduced as they form the basis from which the Navy will draw its future

[1] Rick Boychuk, "Polar collaboration," *Canadian Geographic*, January/February 2007, 14.

tasks in the high North. These naval tasks and functions are then reviewed using the *Canadian Naval Roles and Functions for the 21st Century*[2] model to assess their continued relevance in 2030. Thereafter, new CF capabilities announced by the Government to increase presence in the North are presented, along with the Navy's future Fleet, to determine if the anticipated tasks can be carried out with the planned Fleet Mix. In conclusion, the reader will see that indeed the Navy, with appropriate and consistent government support, will be ready for its tasks in the high North in 2030.

## DISCUSSION

### An assessment of the situation in 2030

*Climate Change*

It is undeniable that climate change is producing a renewed interest in the North and the generation of numerous models aiming at predicting the rate of change and its associated impact. In 2004, Susan Hassol reported that:

> "The Arctic is extremely vulnerable to observed and projected climate change and its impact. The Arctic is now experiencing some of the most rapid and severe climate change on earth. Over the next 100 years, climate change is expected to accelerate, contributing to major physical, ecological, social, and economic changes, many of which have already begun."[3]

As a result, it is anticipated that new business ventures will be facilitated by a more benign climate and the increased navigable periods in the Arctic. Again, the documentation predicted that:

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[2] Department of National Defence, *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*, (Ottawa: Chief of Maritime Staff/Directorate of Maritime Strategy, May 2005), 18.

[3] Susan Joy Hassol, Arctic Climate Impact Assessment-Highlights, *Impacts of a Warming Arctic*, (Cambridge University Press, 2004), 2.

> "…sea ice in summer will retreat further and further away from most arctic landmasses, opening new shipping routes and extending the period during which shipping is feasible."[4]

Indeed, there will be a general shipping increase in the Arctic mainly on the North Sea Route (Arctic North of Russia), and around the Eastern and Western Arctic.[5] However, transiting the Northwest Passage will remain difficult in 2030 as ice will still be present in the Passage and its choke points.[6] Peter Haydon, a naval and maritime security issues specialist, summarizes the Passage issue as follows:

> "The real issue is not the reduction of the ice, it is the opening of those waters for *safe* navigation. Purpose-built vessels with the necessary reinforced hulls are expensive, and so viable economic use of the Northwest Passage is likely to remain impractical for many decades".[7]

Therefore, while the requirement to patrol Arctic waters will increase overtime, there is no need to drastically do so immediately, as highlighted here.

*Economic Change*

Economic activity will continue to increase in the Canadian North as warmer climate allows increased access to natural resources. The Mackenzie Valley Pipeline[8] project and the

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[4] Ibid., 12.

[5] Lawson W. Brigham, Alaska Forum on the Environment Anchorage 6 February 2006, "Changing Marine Access in the Arctic Ocean and the Arctic Council's Response," http://www.akcf.org/_attachments/climate_change/3Brigham.pdf; Internet; accessed 26 January 2007.

[6] K.J. Wilson, J. Falkingham, H. Melling and R. De Abreu, Arctic Change-A Near-Realtime Arctic Change Indicator Website, Canadian Marine, "Shipping in the Canadian Arctic: Other Possible Climate Change Scenarios," http://www.arctic.noaa.gov/detect/KW_IGARSS04_NWP.pdf; Internet; accessed 26 January 2007.

[7] Peter Haydon, "The New Arctic Security Policy: Some thoughts," Canadian Naval Review, Summer 2006, 33.

[8] Mackenzie Gas Project, "Project Phases and Scheduling," http://www.mackenziegasproject.com/moreInformation/publications/documents/Project_Phases&Sched.pdf; Internet; accessed 26 January 2007.

precious metals exploitation are two obvious examples of this phenomenon. It was said that "Canada [is] comfortably the third largest producer of rough diamonds in the world after Botswana and Russia."[9] In fact, Canada was toted in 2006 as an emerging energy superpower[10], which seems to increasingly become a reality, considering the current high interest level in exploration and exploitation of northern resources.

*Sovereignty Issue*

Along with the positive economic impact in the North, sovereignty and security issues are also raising concerns. As mentioned in *Canada's International Policy Statement* about the increasing demands of sovereignty and security in the North, population growth, environment protection, criminal activities, air traffic, search and rescue are all issues to be prepared for.[11] The same document also states that the CF is not the primary responder to some of the constabulary tasks such as crime, but will undoubtedly provide support and must therefore be prepared.[12] In addition, challenges to Canadian Arctic Sovereignty claim, such as the status of the Northwest Passage, the Economic Exclusion Zone in the Arctic and the Hans Island claim,

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[9] Government of Northwest Territories, Industry, Tourism and Investment, "Diamond Facts 2005," http://www.iti.gov.nt.ca/diamond/industry.htm#world; Internet ; accessed 26 January 2007.

[10] Canada, Natural Resources Canada, The News Room-Natural resources Canada's News Source, "Minster Lunn Puts Spolight on Canada as Energy Superpower, 19 July 2006, http://www.nrcan-rncan.gc.ca/media/newsreleases/2006/200621_e.htm; Internet; accessed 26 January 2007.

[11] *Canada's International Policy Statement – A Role of Pride and Influence in the World: Defence,* (Government of Canada, 20 April 2005), 17.

[12] Idib., 17.

are likely to generate much attention, which will require additional surveillance and presence in the North.[13]

*The situation in the 2030 North – A perspective*

As seen thus far, it is clear that the situation in the North in 2030 will be quite different than today's reality. The ice is melting, accessibility is increasing, business is booming and sovereignty issues are resurfacing. By 2030, the increased activity level in the region will, therefore, necessitate commensurate CF presence. Care should be taken; however, to not over-react to the changing situation as navigation, especially in the Northwest Passage, will still be treacherous due to ice conditions until at least the middle of this century. An incremental presence increase over the next decades, as currently planned by naval staff, is therefore prescribed. The next step will discuss the continued validity of naval tasks and presence functions, alluded to here, in 2030.

**Future Naval Tasks**

To determine whether the Navy's planning will still be relevant in 2030, a review of the Canadian Naval Roles and Functions for the 21th Century, included in the Navy's *Securing Canada's Ocean Frontiers-Charting the Course from Leadmark,*[14] is used. The list is represented as a triangle where the central naval function is the requirement to retain the use of the sea. To achieve this, three categories of roles are defined and within each role are specific tasks, depicted in the figure below.

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[13] Kyle D. Christensen, Department of National Defence, Defence R&D Canada, Operational Research Division, Technical Report, TR2005/01, *Arctic Maritime Security and Defence: Canadian Northern Security Opportunities and Challenges*, (Government of Canada, 15 June 2005), 39.

[14] *Securing Canada's Ocean Frontiers…,* 18.

*Figure 1*

***CANADIAN NAVAL ROLES AND FUNCTIONS FOR THE 21ST CENTURY***

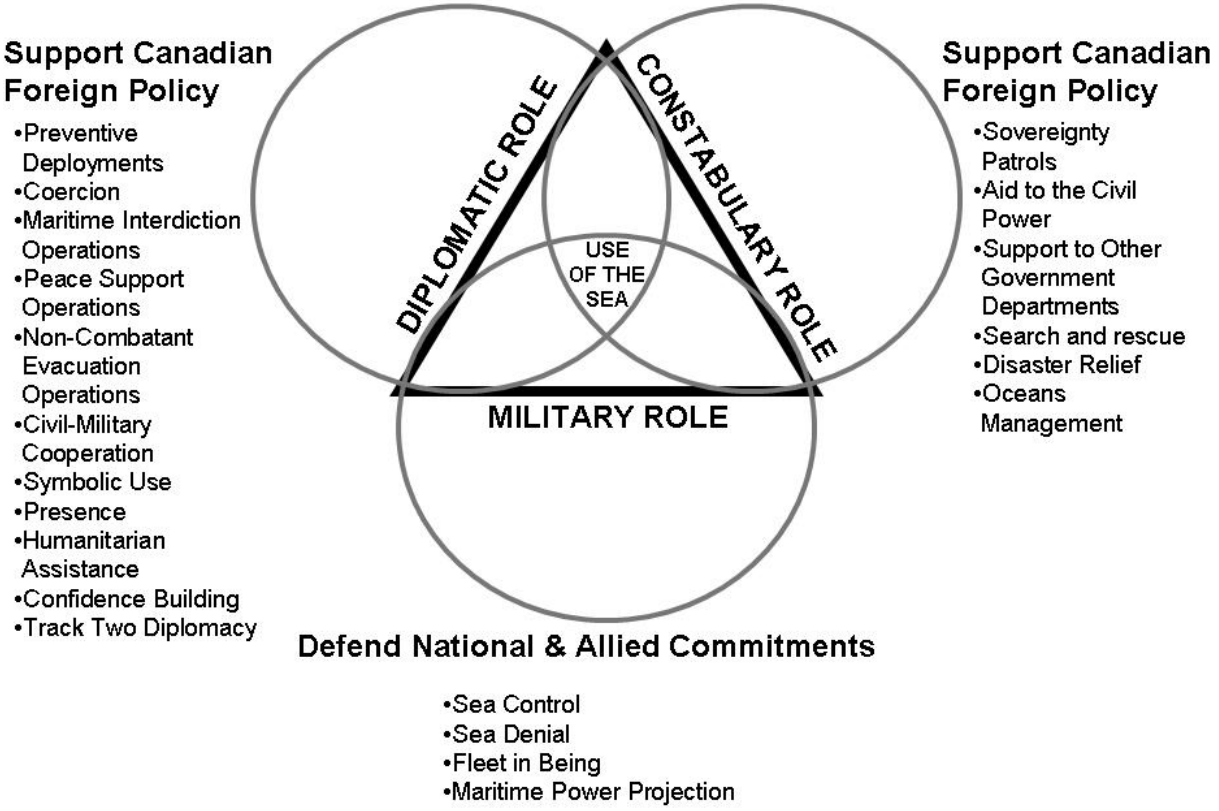


**Figure 1 - Canadian Naval roles and Functions for the 21th Century**

Source: Chief of Maritime Staff, *Securing Canada's Ocean Frontiers-Charting the Course from Leadmark, 18.*

As seen in figure 1, it is readily apparent that a warship is capable of accomplishing a number of tasks concurrently, which is also the case for northern operations.[15] It will therefore be no surprise that a large portion of these functions remain germane in 2030.

[15] Department of National, *Leadmark: The Navy's Strategy for 2020*, (Ottawa: Chief of Maritime Staff/Directorate of Maritime Strategy, 18 June 2001), 33.

The Diplomatic Role

The first category of functions to be discussed is the diplomatic role, which involves the navy's support of Canada's Foreign Policy. Because these tasks are mostly accomplished abroad, most are not relevant to the present discussion. However, Symbolic use, Presence and Humanitarian Assistance, are anticipated to remain valid tasks while deployed in the Arctic region and are therefore reviewed below.

Symbolic use is the employment of maritime forces to send a message such as sovereignty issue or to demonstrate the limits of maritime jurisdiction to a specific nation.[16] This function will take on increased importance considering the "adoption of the third phase of the United Nations Convention on the Law of the Sea (UNCLOS III) [which] permits states to expand their maritime economic zones dramatically.[17] Considering the extensive Canadian sovereignty claim in the Arctic and the Northwest Passage, asserting these claims "will benefit from the use of naval forces as a demonstration of our national interest in defining marine boundary lines."[18] Along with symbolic use, it will likewise be required to maintain a presence, which is

> "the exercise of naval diplomacy in a general way involving deployments, port visits, exercising and routine operating in areas of interest to declare interest, reassure friends and allies and to deter."[19]

For instance, such presence was demonstrated in August 2006 when ships, air assets and soldiers operated in the Baffin Island region.[20] While deployed in Arctic waters, it is also foreseen that

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[16] Ibid,. 38.

[17] *Securing Canada's Ocean Frontiers…*, 15.

[18] Ibid., 16.

[19] *Leadmark: The Navy's Strategy for 2020,* 39.

ships will be employed in the Humanitarian Assistance Role to "relieve human suffering, especially when local or government authorities are unable, or possibly unwilling, to provide adequate aid to the population."[21]

The Constabulary Role

The second category to be discussed is constabulary tasks. Although other government fleets such as the Coast Guard exist to fulfill these roles,

> "many of these services…are not armed or equipped to enforce fully the statutes of law. They must occasionally turn to their navies for support for certain constabulary purposes or *functions*."[22]

As such, the Navy is regularly called upon to accomplish policing tasks and will continue to do so for the foreseeable future, including in Arctic waters. In fact, as mentioned in a National Defence Technical Report, constabulary tasks will form the main roles for the navy in the Canadian Arctic.[23]

The first, Sovereignty Patrol, is a form of presence, conducted "within a state's area of maritime jurisdiction, in support of nation building, to reinforce a claim in contested waters…"[24] As was discussed about future capabilities at the April 2004 Maritime Security and Defence

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[20] Joanna Labonté, Captain, "OPERATION LANCASTER-Arctic operation a sovereignty success," *Trident: The Newspaper of Maritime Forces Atlantic,* 4 September 2006, 7.

[21] *Leadmark: The Navy's Strategy for 2020,* 39.

[22] *Leadmark: The Navy's Strategy for 2020,* 40.

[23] DND, Technical Report, TR2005/01, *Arctic Maritime Security and Defence…*, 49.

[24] Ibid., 40.

Seminar held in Toronto, Canada, "…the navy recognizes the importance of the Arctic region and plans to have a greater presence there."[25]

In contrast to the previous task of Aid to the Civil Power, which involves assistance to authorities during a riot or disturbance of the peace, assistance to Other Government Departments (OGDs) is relatively routine for the Canadian Navy. Assistance to OGDs includes other levels of Government, "to enforce Canadian national sovereignty and interest claims, and to conduct domestic operations, in areas such as fisheries protection, drug interdiction and environmental protection."[26] The reason to assist OGDs such as the Royal Canadian Mounted Policy (RCMP) and the Department of Fisheries and Oceans (DFO) would be to provide assets and expertise when their own assets are not available, non-existent or inappropriate for the task. Examples are plentiful; for instance, the Navy provides over one hundred sea days per year in one of Her Canadian Majesty's Ships (HMCS) to patrol the East Coast fishing grounds. Likewise, the Navy recently assisted the RCMP in apprehending drug laden vessels destined for Canadian market.[27] It is hence safe to say that such roles for the navy will remain very relevant in 2030 in an increasingly populated North where policing-type and monitoring activities will need to be conducted at sea.

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[25] The Canadian Navy and the New Security Agenda. *Proceedings of the Maritime Security and Defence Seminar, Toronto, 26-27 April 2004* / Edited by Ann L. Griffiths (Halifax, Centre for Foreign Policy Studies), 93.

[26] Ibid., 40.

[27] Department of National Defence-Canadian Navy: Operations and Exercises, "HMCS ST. JOHN'S participates in counter-drug operation," http://www.navy.forces.gc.ca/cms_operations/operations_e.asp?id=192; Internet; accessed 29 January 2007.

The next task, Search and Rescue, has always been a top priority for not only Navy ships but for all vessels and has long been acknowledged as a customary law of the sea.[28] The task of preserving life at sea will therefore be consistently executed for the foreseeable future. What is particular with this task is that it is exponentially more difficult and time-critical in northern climates. Given the difficult nature of search and rescue in the North, such a scenario is being studied by the Defence Planning and Management Staff to assist in future capabilities development.[29] Alongside the search and rescue task is the disaster relief function, where the navy is called upon to "provide aid in the wake of a natural or human-induced disaster within Canadian territory such as flood, forest fires, chemical spills or nuclear accident."[30] As it pertains to the Arctic environment and increased activity in the North, it is therefore quite foreseeable that the CF be called upon to assist in a disaster relief scenario. Colonel Couturier put it well when he mentioned that:

> "Calls for help to CFNA [Canadian Forces Northern Area] might include a plane crash, a major oil spill from a ship, a large building collapsing with multiple injuries in an isolated community, a missing hunter or a lost adventurer…"[31]

The last function to be discussed in the constabulary role is the employment of the Navy to participate in Oceans Management, which aims as monitoring activities at sea to ensure that

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[28] United Nations Convention on the Law of the Sea (UNCLOS) Article 98.

[29] Department of National Defence-Defence Planning and Management, "Scenario 1-Search and rescue in Canada," http://vcds.mil.ca/dgsp/pubs/rep-pub/dda/sccen/scen-1_e.asp; Internet; accessed 24 January 2007.

[30] *Leadmark: The Navy's Strategy for 2020,* 41.

[31] Department of National Defence-Defence Planning and Management, Bravo Defence, "Maintaining sovereignty is a "daunting task" in the vast Arctic," http://vcds.mil.ca/dgsp/pubs/bravo/summer05/cfnorthernarea_e.asp; Internet; accessed 24 January 2007.

regulations concerning those activities are respected both under and on the sea.[32] As mentioned by James Raffan in a recent article in the Canadian Geographic,

> "The [United Nations Convention of the Law of the Sea (UNCLOS)] agreement confirms that fragile Arctic environment deserve more stringent protection under UN law and supports Canada's move to define its territory in the Arctic Archipelago."[33]

Given the increasing amount of activity in the Arctic, the risk that someone will willfully or accidentally contravene environment protection regulations will also increase. While the Coast Guard is currently better positioned to monitor such activities, as the Navy's presence in the region in 2030 will be increased, this function will undoubtedly remain relevant for the Navy.

Military Role

The third aspect of the use of the sea model is the traditional military role, including Sea Control, Sea Denial, Fleet in Being and Maritime Power Projection. As it is assessed that the missions assigned to naval assets in the Arctic in 2030 will almost exclusively be constabulary in nature, the military roles, although extremely important, are beyond the scope of this paper and are therefore not discussed. Indeed, "Currently it appears the most likely role for the Navy in the North will be monitoring economic activities (particularly protecting hydrocarbon reserves) and preventing environmental pollution."[34]

To summarize the foreseen naval tasks in year 2030 in the high North, it is safe to say that an increase in activity in the region will increase the requirement for the Navy to fulfill

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[32] DND, *Leadmark: The Navy's Strategy for 2020,* 41.

[33] James Raffan, "Patrolling the Northwest Passage," *Canadian Geographic*, January/February 2007, 51.

[34] DND, Technical Report, TR2005/01, *Arctic Maritime Security and Defence…*, 59.

primarily presence, sovereignty and constabulary functions. As far as the mission types themselves, as seen above, they will remain relevant. This also implies that the level of cooperation and coordination between the Coast Guard, RCMP and the Navy will increase based on shared and inter-agency missions in the North. However, the naval platforms will need to be adapted to deal with the northern environment and new vessels constructed with some ice navigation capability. Two extracts from *Charting the Course from Leadmark*, support this assessment. The first refers to the coordination requirements where "Future domestic challenges may blur the operational lines between the Navy, RCMP, Canadian and US Coast Guards."[35] Then, while discussing an emerging naval mission referred to as National Maritime Presence, it is assessed that:

> "The Navy, in concert with the Army and Air Force, will also continue to explore new ways of improving CG surveillance and response in the North through: incorporating improvements such as first-year ice[36] capability in new warship designs; and the smart use of new technologies, such as uninhabited aerial vehicles, satellites and radars, in to order to improve surveillance of our vast Arctic maritime region."[37]

Having re-validated the list of roles for Canada's Navy in the Arctic 2030, it is now appropriate to discuss the ships, aircrafts and other sensors planned for operation in that timeframe.

**The platforms and sensors plan**

In the 2005 Defence Policy Statement, the Liberal Government tasked Canada's Maritime Forces to "enhance their surveillance of, and presence in, Canadian areas of maritime

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[35] DND, *Securing Canada's Ocean Frontiers…*, 26.

[36] Natural resources Canada, "The Atlas of Canada: Discover Canada through National Maps and Facts," http://atlas.nrcan.gc.ca/site/english/learningresources/glossary/results.html?term=First%20Year%20Ice; Internet; accessed 16 April 2007. **First Year Ice**: is the ice resulting from not more than one winter's growth, ranging in thickness from 30 cm to 2 m. It is usually greenish-white in colour and contains some salt.

[37] Ibid., 22.

jurisdiction, including the near-ice-free and ice-free waters of the Arctic."[38] Later in August 2006 in Iqaluit, the Conservative Government under Stephen Harper reiterated the commitment to enhance presence in the North as "this will become more important in the decades to come-because northern oil and gas, minerals and other resources of the northern frontier will become ever more valuable."[39] In support of this statement, the Prime Minister (PM) added a series of naval and CF initiatives aimed at asserting Canada's claim in the North:

- three new armed naval heavy ice breakers including 500 Regular Force crew and support personnel – to be based at a "new military/civilian deep-water docking facility" near Iqaluit;
- an Arctic National Sensor System including underwater surveillance technologies;
- UAV squadrons at CFB Comox and Goose Bay to provide "eastern and western Arctic air surveillance"; and
- new fixed-wing search-and-rescue aircraft for 440 Squadron at Yellowknife.[40]

This list is different than the earlier publication of the Navy's planned Fleet Mix 2025 in *Securing Canada's Ocean Frontiers*, which includes the following capabilities:

- Single Class Surface Combatant (SCSC);
- Task Group Support to Land Operations;
- Enhanced Offshore/Inshore Patrol Capability, Patrol Submarine (SSK);
- Organic Air (MHP); and
- Uninhabited Aerial Vehicles (UAV)s.[41]

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[38] National Defence and the Canadian Forces, "2005 Defence Policy Statement: Canada's Maritime Forces," http://www.forces.gc.ca/site/reports/dps/facts/fs-maritime_e.asp; Internet; accessed 01 February 2007.

[39] Office of the Prime Minister, speech "Securing Canadian sovereignty in the Arctic," http://www.pm.gc.ca/eng/media.asp?id=1275; Internet; accessed 01 February 2007.

[40] DeMille, Dianne, Priestly, Stephen, "Stephen Harper announces the new defence policy put forward by the Conservative Party of Canada," http://www.sfu.ca/casr/ft-harper1-1.htm; Internet; accessed 03 February 2007.

While the government-announced capabilities and the Navy's intent are different, it is believed that both lists offer a very attractive combination of capabilities. Once rationalized, there exist a good opportunity to develop a way-ahead for future assets capable of northern operations in 2030. The equipment forecast in year 2030 below describes the foreseen capability requirements in consideration of both the Government list and the Fleet Mix 2025.

*The Ships and Submarines*

In 2030, at least 4 SCSC (replacing IROQUOIS Class destroyers by 2020) will be operational. Additional SCSCs (replacing the HALIFAX Class frigates) will mean that in 2030, the Fleet will include a mix of SCSC and HALIFAX Class ships.[42] This will amount to approximately 16 major warships, of which usually 4 or 5 will be unavailable due to regular maintenance cycles. Although warships, including the SCSC, are not usually designed for Arctic operations with only brash ice capability up to the ice edge,[43] they will likely be found more regularly in the increasingly ice-free Arctic waters in 2030. Other than the requirement to remain in virtually ice-free waters, major warships will be operating off the East, West and ice-free Northern regions with their inherent versatility. From this capability requirement, it is assessed that the Navy will therefore be ready to operate in the high North as the ice-free areas grow in size in higher latitudes.

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[41] DND, *Securing Canada's Ocean Frontiers…*, 39-45.

[42] Joe Woodard, "Canada's Future Naval Fleet," *Canadian Defence Review: Canada's Authoritative Defence Journal*, August 2006, 12.

[43] DND, Technical Report, TR2005/01, *Arctic Maritime Security and Defence…*, 53.

In 2030, three Joint Support Ships (JSS) will be in the Fleet as a replacement for the PROTECTOR Class replenishment ships prior to 2020.[44] These vessels will fulfill an extensive amount of Naval and CF roles. Along with excellent flexibility, they will possess a first year ice capability.[45] It is assessed that with the anticipated increased northern activity levels of 2030, coupled with the requirement for the CF to operate in the North, the ice capability of the JSS supports the Navy's strategic planning for the Northern dimension. Given these vessels' capabilities, it is submitted that they will be in high demand and that prioritizing their busy sailing schedule will be very challenging.

In 2030, submarines will still be in operation in the Navy and will remain a critical capability in the Fleet.[46] To operate in a near-ice and ice-covered environment, submarines require the capability to remain submerged for extended periods. For diesel boats, such as the Canadian VICTORIA Class or its replacement, an air independent propulsion (AIP) system would be required to enhance its submerged endurance. Publicly, there is no schedule to install an AIP on the VICTORIA or replace the submarines. However, the Navy still plans on having that capability as an acknowledgement of the requirement in the future north.[47] This paper supports the Navy's assessment, given that situations in 2030 may require the services of a covert platform to fulfill roles such as sovereignty, security patrols or the surveillance of foreign platforms. The 2005 Policy Statement on Defence confirms that "Adversaries could be tempted

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[44] Joe Woodard, "Canada's Future Naval Fleet," 6.

[45] Department of National Defence, Materiel, "Proposed Ship Capabilities," http://www.forces.gc.ca/admmat/dgmepm/pmojss/capabilities_e.asp; Internet; accessed 3 February 2007.

[46] DND, *Securing Canada's Ocean Frontiers…*, 43.

[47] The Canadian Navy and the New Security Agenda, 93.

to take advantage of new opportunities unless we are prepared to deal with asymmetric threats that are staged through the North."[48] Submarines are ideally suited and cost effective to conduct this special monitoring role. As such, the Navy will be ready from a submarine capability aspect, both for strategic power projection abroad and as a force multiplier in the North.

In 2030 it is anticipated that the 12 Maritime Coastal Defence Vessels (MCDV)s will have been replaced by another, larger and faster vessel to conduct coastal surveillance and other constabulary roles. This platform requirement is acknowledged in *Securing Canada's Ocean Frontiers* and is described as an "Enhanced Offshore/Inshore Patrol Capability," which "would include the ability to operate in the vicinity of the Arctic ice pack…"[49] It will be armed and possess a first-year ice capability, which will make it Arctic deployable. While the current MCDV could conceivably still be operational in 25 years, they possess limited capability in high sea states to conduct exposed deck operations due to its small size. It is also speed-limited at 15 knots, which makes it a poor platform to react quickly to search and rescue tasks and to give pursuit. A case in point, the new but smaller ORCA Class training vessel is capable of 20 knots to allow them to conduct surveillance and coastal patrol missions, while conducting officer and non-commissioned members' training.[50] MCDVs do possess, however, some first year ice capability,[51] which enables them to operate in higher latitudes for a considerable portion of the year. In fact, MCDVs could be effective in the Arctic with appropriate support and mission re-

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[48] *Canada's International Policy Statemen-Defence…*, 17.

[49] DND, *Securing Canada's Ocean Frontiers…*, 42.

[50] Canadian American Strategic Review, "Background – the Orca Class (YAG 300 Replacement) Project," http://www.sfu.ca/casr/bg-orca-project.htm; Internet; accessed 4 February 2007.

[51] DND, Technical Report, TR2005/01, *Arctic Maritime Security and Defence…*, 53.

assignment, as the ORCA Class tenders assume some of the MCDVs' training tasks. Although not the advocated icebreakers mentioned by the PM earlier, they could provide an option for government to enhance presence in the North in a relatively short timeframe. In fact, given the decreased amount of sea ice by 2030, it does not seem logical for the navy to acquire an icebreaking capability, as icebreaking requirements will be decreasing overtime. The navy should, however, ensure that future vessels can operate in first-year ice, which will greatly enhance the freedom of movement required to produce the desired effects in the Canadian Arctic by 2030.

Returning to the discussion of a new patrol vessel, the Canadian American Strategic Review (CASR) site includes a proposal for an "Offshore Patrol Vessel" (OPV).[52] This article refers to a report to the Standing Senate Committee on National Security and Defence when retired Captain(N) John Dewar recommended a patrol vessel for the Navy to conduct law enforcement functions.[53] While the number of hulls is not mentioned in this document there is a reference to a 1991 call for 18 MCDVs and 6 "Patrol Corvettes" or OPVs on the CASR site. Leaping forward to the renewed interest in the North and increased shipping seasons in 2030, it is speculated that the Navy will have acquired between 8 and 10 ships to replace the MCDVs. Such a concept and requirement for an ice-capable patrol vessel is readily acknowledged by the Navy. As mentioned in *Securing Canada's Ocean Frontiers*, "…explore new ways of improving CF surveillance and response in the North through: incorporating improvements such

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[52] Canadian American Strategic Review, "Maritime Security: Offshore Patrol Vessels for the CF? A Series of Short Articles on OPV Sizes and Capabilities," http://www.sfu.ca/casr/id-opv.htm; Internet; accessed 7 February 2007.

[53] "Canada's Coastlines: The Longest Under-Defended Borders in the World, APPENDIX XI, http://www.parl.gc.ca/37/2/parlbus/commbus/senate/Com-e/defe-e/rep-e/rep17vol2part3-e.htm; Internet; accessed 7 February 2007.

as first-year ice capability in new warship designs:…"[54] This acknowledgement clearly indicates that the Navy will be ready and actively patrolling Arctic waters in 2030.

*From the Air*

In 2030, the Navy will also be supported by its own organic air assets and those of the CF at large. Firstly, major warships will deploy with a CYCLONE H92 helicopter embarked.[55] The aim here is not to fully describe the range of capabilities and flexibility offered by an organic air asset. However, it must be mentioned that the execution of virtually all conceivable tasks to be carried out in the North in 2030 such as search and rescue, and surveillance will be greatly enhanced by having a CYCLONE embarked. Deployments such as the one conducted by HMCS FREDERICTON in 2005 up to Pond Inlet in support of DFO for fisheries patrol is a concrete example where organic helicopter will be invaluable to future missions.[56]

Much like, but arguably not as capable as a manned craft, embarked Unmanned Air Vehicles (UAV)s are likely to be sharing the airspace in the Arctic of 2030 to either complement or replace organic helicopters. It is speculated that smaller UAVs will also embark in smaller ships to produce similar effects as a manned helicopter in larger platforms. As such, the Navy very much sees this capability in the Fleet Mix of 2025, [57] especially as the technology evolves and becomes more affordable.

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[54] DND, *Securing Canada's Ocean Frontiers…*, 22.

[55] DND, *Securing Canada's Ocean Frontiers…*, 44.

[56] Ian Anderson, Lieutenant-Commander, "Northern Deployments: Naval Operations in the Canadian North," *Canadian Naval* Review, Volume 1, number 4 (Winter 2006): 11-12.

[57] DND, *Securing Canada's Ocean Frontiers…*, 44.

Another type of UAV is also anticipated to be patrolling the Arctic in 2030. As the concept is not yet matured, it would only be a speculation to guess the number of platforms envisaged for long range Arctic surveillance. As mentioned in the government announcement of capability requirements for Arctic operations, UAV squadrons could be based at CFB COMOX and GOOSE BAY to optimize their operating radius based on assigned coverage areas. UAVs, similar to the PREDATOR or GLOBAL HAWK, are also included in the Fleet Mix plans for the Navy to "provide significant on-station time for offshore and Arctic patrols."[58] Given the recent Defence document mentioning the retirement of 6 AURORA Maritime Patrol Aircrafts (MPA),[59] which provided the CF primary large-scale situational awareness information and surveillance in the North, it is speculated that UAVs are now on the agenda as new long term surveillance capability.

Although not part of the Navy's capabilities, but a CF asset, it is anticipated that the new fixed-wing search-and-rescue aircraft for 440 Squadron at Yellowknife announced by government, will support naval assets increasingly deployed in the Arctic. Although the details are unknown, it is speculated that there will be fixed-wing aircrafts in the northern area in 2030 for transport, presence and surveillance requirements in the Joint Task Force North (JTFN) area, as well as for search and rescue tasks. It is likely that the recent joint forces northern deployments will be the norm by 2030.[60] Therefore, while deployed North, naval forces will

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[58] DND, *Securing Canada's Ocean Frontiers…*, 42.

[59] David Pugliese, Canada.com, The Ottawa Citizen, "Forces want to scrap gear, save for new," http://www.canada.com/components/print.aspx?id=22fbb1c1-2162-4a26-b721-f153a000e36e; Internet; accessed 4 February 2007.

support, and be supported by, JTFN air assets which will in turn contribute to the Navy's readiness and the CF's presence requirements.

*Other CF capabilities*

Two more capabilities not discussed yet, but previously mentioned, will also significantly affect future naval operations in the North. The first is the intention to create a civilian-military docking facility near Iqaluit. While naval staff is studying the concept for a northern location to, at a minimum, berth and fuel is not considered implausible that recommendations include additional facilities in lieu of, or in addition to, Iqaluit to increase flexibility. While it would be ideal for such a facility to possess additional logistical support to further increase ships effectiveness, it could well be cost prohibitive. Nonetheless, for the reasons stated here, the establishment of at least one fueling and berthing facility in the North from which government fleets could refuel while deployed is supported.

The last capability mentioned in the government list is the intention to install listening devices at the bottom of the Arctic Ocean to detect shipping, including submarines, transiting Canadian waters. While this concept is valid, the technology is still inadequate to deal with the difficulties of operating in icy waters. The ice movement and sea life is extremely noisy in northern waters, which gives the system "no preventative and little deterrent value."[61] While technology has evolved, the paper supports Peter Haydon when he contends that such effort would not be appropriate now, or in 2030, given the limited traffic density anticipated.

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[60] Northern Deployments: Naval Operations in the Canadian North, 6-12.

[61] Peter Haydon, "The new Arctic Security Policy: Some Thoughts," *Canadian Naval Review*, Volume 2, Number 2 (Summer 2006): 34.

However, if the technology becomes effective after 2050, when the Northwest Passage is likely to be ice-free most the year, the use of an underwater listening device should be reconsidered.

After a brief discussion of the various platforms and capabilities anticipated to be operating in the Canadian Arctic in year 2030, there indeed exists a long term naval strategy. Although significant resources are required to develop the necessary capabilities, a good portion of the additional capabilities needed in the North are already included in the Navy's strategic plan. Given continued efforts by all levels of the naval and CF strategic staffs, as well as strong public and government support, the plan is valid and feasible.

In order to ensure that a clear vision for the future navy becomes reality, it is essential to convey a consistent message to the public and the government. To remain relevant a long term naval strategic approach, like *Charting the course from Leadmark* is clearly necessary as platform development and acquisition programmes take decades to complete. Planners must therefore anticipate roles and match capabilities for an operating environment still decades away, not years. Radical and sudden changes to the plan as a reaction to short term issues such as budget fluctuations and political agendas will result in the navy being unable to provide any relevant capability due to the absence of a consistent strategic vision. As such, this paper strongly supports the Maritime Staff's approach, which states:

> "Further, given the useful operational lifespan of a modern warship of between 25-30 years, as well as a 10-15 year design and acquisition period, naval thinking and plans for force development must consider a period of up to 45 years. To bridge the gap…Canada requires a sustained, long-term acquisition and modernization program to deliver a combination of assets."[62]

[62] DND, *Securing Canada's Ocean Frontiers…*, 38-40.

## CONCLUSION

It is not a surprise to anyone that there is much work to be done in the Department of National Defence and the Strategic Joint Staff to deliver on the national security issues of the Arctic on land and at sea. The interest in the north resulting from global warming and the melting ice cap has caused a frenzy of information gathering efforts in the North and prompted naval deployments in the last few years. It has in fact already changed the physical and political environment Canada's fleets are operating in today. In addition, the northern deployments of the last few years have been a catalyst for the development of new doctrine and procedures which will be applied to the conduct of future military operations in the region.

Despite seemingly differing views on the capability requirements between the Government and the Navy, there is actually general agreement on the infrastructure needs of the future North. To illustrate this point, this paper briefly looked at the environmental situation in the North, focusing on the maritime impact. It explained that the ice cap is clearly melting and that vessel traffic in the North is slowly increasing. However, it was emphasized that the Northwest Passage will not be safe, nor commercially viable until at least the second half of this century due to the presence of ice in the Passage for a significant portion of the year. Therefore, a drastic increase in Naval presence now is not necessary, as it could result in short term decisions that may be detrimental to the overall naval strategy and affect future programmes.

The paper then described what was foreseen as the naval roles and functions in year 2030. These roles were then compared with the planned Fleet Mix and the government list of capability requirements in the North where it was shown that, in fact, most functions will remain

valid for the foreseeable future. Following the discussion, the various platforms and capabilities anticipated to be in place in 2030 were then discussed. It was argued that the capabilities envisaged will effectively satisfy the need to operate in the north and that consistent strategic vision is required to ensure that they be provided when required and in the right amount. In conclusion, it can therefore be safely said that the Navy will be ready with the right tools in 2030 to assert sovereignty over the Canadian Arctic in the interest of all Canadians.

**Bibliography**

**Public Documents**

Canada. Department of National Defence. *Leadmark: The Navy's Strategy for 2020*. Ottawa: Chief of Maritime Staff/Directorate of Maritime Strategy, 18 June 2001.

Canada. Department of National Defence. *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*. Ottawa: Chief of Maritime Staff/Directorate of Maritime Strategy, May 2005.

Canada. Government of Canada. *Canada's International Policy Statement – A Role of Pride and Influence in the World: Defence.* 20 April 2005.

Canada. Government of Canada. *Canadian Northern Security Opportunities and Challenges*, 15 June 2005.

Christensen, Kyle D. Department of National Defence. Defence R&D Canada, Operational Research Division, Technical Report, TR2005/01. *Arctic Maritime Security and Defence: Canadian Northern Security Opportunities and Challenges*. Government of Canada, 15 June 2005.

United Nations Convention on the Law of the Sea (UNCLOS) Article 98.

**Journals**

Anderson, Ian, Lieutenant-Commander. "Northern Deployments: Naval Operations in the Canadian North." *Canadian Naval Review*, Volume 1, number 4 (Winter 2006): 11-12.

Boychuk, Rick. "Polar collaboration." *Canadian Geographic*, January/February 2007, 14.

Hassol, Susan Joy. Arctic Climate Impact Assessment-Highlights. *Impacts of a Warming Arctic*. Cambridge University Press, 2004.

Haydon, Peter. "The new Arctic Security Policy: Some Thoughts." *Canadian Naval Review*, Volume 2, Number 2 (Summer 2006): 34.

Labonté, Joanna, Captain. "OPERATION LANCASTER-Arctic operation a sovereignty success." *Trident: The Newspaper of Maritime Forces Atlantic,* 4 September 2006, 7.

Raffan, James. "Patrolling the Northwest Passage." *Canadian Geographic*, January/February 2007, 51.

The Canadian Navy and the New Security Agenda. *Proceedings of the Maritime Security and Defence Seminar, Toronto, 26-27 April 2004* / Edited by Ann L. Griffiths. Halifax, Centre for Foreign Policy Studies, 2004.

Woodard, Joe. "Canada's Future Naval Fleet." *Canadian Defence Review: Canada's Authoritative Defence Journal*, August 2006, 12.

**Electronic Sources**

Brigham, Lawson W. Alaska Forum on the Environment Anchorage 6 February 2006. "Changing Marine Access in the Arctic Ocean and the Arctic Council's Response." http://www.akcf.org/_attachments/climate_change/3Brigham.pdf; Internet; accessed 26 January 2007.

"Canada's Coastlines: The Longest Under-Defended Borders in the World." APPENDIX XI, http://www.parl.gc.ca/37/2/parlbus/commbus/senate/Com-e/defe-e/rep-e/rep17vol2part3-e.htm; Internet; accessed 7 February 2007.

Canadian American Strategic Review. "Background – the Orca Class (YAG 300 Replacement) Project." http://www.sfu.ca/casr/bg-orca-project.htm; Internet; accessed 4 February 2007.

Canadian American Strategic Review. "Maritime Security: Offshore Patrol Vessels for the CF? A Series of Short Articles on OPV Sizes and Capabilities." http://www.sfu.ca/casr/id-opv.htm; Internet; accessed 7 February 2007.

Canada, Natural Resources Canada. The News Room-Natural resources Canada's News Source. "Minster Lunn Puts Spolight on Canada as Energy Superpower, 19 July 2006." http://www.nrcan-rncan.gc.ca/media/newsreleases/2006/200621_e.htm; Internet; accessed 26 January 2007.

DeMille, Dianne, Priestly, Stephen. "Stephen Harper announces the new defence policy put forward by the Conservative Party of Canada." http://www.sfu.ca/casr/ft-harper1-1.htm; Internet; accessed 03 February 2007.

Department of National Defence-Canadian Navy: Operations and Exercises. "HMCS ST. JOHN'S participates in counter-drug operation." http://www.navy.forces.gc.ca/cms_operations/operations_e.asp?id=192; Internet; accessed 29 January 2007.

Department of National Defence-Defence Planning and Management, Bravo Defence. "Maintaining sovereignty is a "daunting task" in the vast Arctic." http://vcds.mil.ca/dgsp/pubs/bravo/summer05/cfnorthernarea_e.asp; Internet; accessed 24 January 2007.

Department of National Defence-Defence Planning and Management. "Scenario 1-Search and rescue in Canada." http://vcds.mil.ca/dgsp/pubs/rep-pub/dda/sccen/scen-1_e.asp; Internet; accessed 24 January 2007.

Department of National Defence, Materiel. "Proposed Ship Capabilities." http://www.forces.gc.ca/admmat/dgmepm/pmojss/capabilities_e.asp; Internet; accessed 3 February 2007.

Government of Northwest Territories, Industry, Tourism and Investment. "Diamond Facts 2005." http://www.iti.gov.nt.ca/diamond/industry.htm#world; Internet ; accessed 26 January 2007.

Mackenzie Gas Project, "Project Phases and Scheduling." http://www.mackenziegasproject.com/moreInformation/publications/documents/Project_Phases&Sched.pdf; Internet; accessed 26 January 2007.

National Defence and the Canadian Forces. "2005 Defence Policy Statement: Canada's Maritime Forces." http://www.forces.gc.ca/site/reports/dps/facts/fs-maritime_e.asp; Internet; accessed 01 February 2007.

Natural resources Canada, "The Atlas of Canada: Discover Canada through National Maps and Facts." http://atlas.nrcan.gc.ca/site/english/learningresources/glossary/results.html?term=First%20Year%20Ice; Internet; accessed 16 April 2007.

Office of the Prime Minister, speech. "Securing Canadian sovereignty in the Arctic." http://www.pm.gc.ca/eng/media.asp?id=1275; Internet; accessed 01 February 2007.

Pugliese, David. Canada.com. The Ottawa Citizen. "Forces want to scrap gear, save for new." http://www.canada.com/components/print.aspx?id=22fbb1c1-2162-4a26-b721-f153a000e36e; Internet; accessed 4 February 2007.

Wilson, K.J., Falkingham, J., Melling, H., and De Abreu, R. Arctic Change-A Near-Realtime Arctic Change Indicator Website, Canadian Marine. "Shipping in the Canadian Arctic: Other Possible Climate Change Scenarios." http://www.arctic.noaa.gov/detect/KW_IGARSS04_NWP.pdf; Internet; accessed 26 January 2007.