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CANADIAN FORCES COLLEGE
CSC 29

EXERCISE NEW HORIZONS

**MARITIME SURVEILLANCE:
A VOID IN NATIONAL STRATEGY**

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Abstract

The water over which Canada enjoys sovereignty and sovereign rights represents an ocean domain that spreads across 4.7 million square kilometres. As part of our heritage and culture, Canadians expect their oceans and associated ecological systems to be clean, protected, and regulated in accordance with their wishes. However, the security and protection of Canada's ocean domain is not governed by a comprehensive strategy against which resources can be applied. Furthermore, the responsibility for ocean security and protection is spread over many departments. Therefore, surveillance effort to safeguard Canada's vital maritime interests is disjointed and largely unregulated. The application of resources that are applied to surveillance is based on relative priorities set by disparate federal mandates executed by departments forced to spread their resources amongst many tasks. Despite the international and domestic requirements to conduct surveillance, the Canadian government has not provided the necessary strategic structure for the fulfillment of these obligations.

Introduction

The enormous ocean mass that surrounds Canada represents a vital national and continental strategic asset. To Canadians, the surrounding oceans are an ensconced component of our cultural history and factor significantly into the nation's economic prosperity. Canada's ocean domain is a determinant in how we choose to protect our national and vital interests from military and non-military threats.

Canada's national interests are those goals that Canadians wish to collectively achieve, and are governed by the overarching principles of peace, order, and good government as articulated in the *Constitution Act of 1867*.¹ Conversely, Canadian vital interests are those that are essential to national survival such as trade, sovereignty, and culture – interests that Canadians are “willing to use force to protect.”² Therefore, in a uniquely Canadian way it can be said that Canadians seek to maintain independence whilst conducting the nation's essential business in a peaceful and stable environment with an underpinning structure of laws and regulations.

The core of Canada's essential business is trade with other nations. Over two thirds of Canada's Gross Domestic Product (GDP) is generated from international trade, of which nearly ninety percent is conducted with the United States.³ Furthermore, eleven percent of our GDP travels upon the sea.⁴ These facts illustrate that global maritime trade routes and, more specifically, sea-lane access to American markets constitute vital interests for which the government has an obligation to protect at the behest of all Canadians. Moreover, the security of those waters contributes to the collective security of the North American continent since much of the voluminous trans-Atlantic and trans-

Pacific sea-trade bound to, and from, the United States transits through Canadian jurisdictional waters. In light of these facts alone, Canada's responsibility to provide for the security of its ocean domain is unambiguous.

As a signatory to *The United Nations Convention on the Law of the Sea, 1982* (UNCLOS), Canada claims *sovereignty* over waters that extend twelve nautical miles from the shore, which includes the airspace above, and the seabed and subsoil below.⁵ In law, *sovereignty* is defined as, "the international independence of a state, combined with the right and power of regulating its internal affairs without foreign dictation... and in this is the manifestation of its freedom."⁶ In other words, Canada's territorial sea is an extension of its landmass. Equally significant is the fact that Canada also claims "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters"⁷ within the declared 200 nautical mile Exclusive Economic Zone (EEZ). Additionally, Canada exercises jurisdiction over the marine environment within the EEZ and all marine research conducted therein.⁸ Hence, Canada's ocean domain is the ocean that is sovereign to Canada and that over which Canada holds sovereign rights. Not including internal waters, this domain occupies a staggering 4.7 million square kilometres of the Earth's surface.⁹

"In declaring its 200 nautical mile EEZ...Canada formally accept[ed] the rights, responsibilities and obligations for the ...protection of those waters."¹⁰ Fundamental to the protection of our maritime regions is knowledge of their use by surface vessels, exploitation platforms, subsurface vessels, and aircraft. This knowledge can only be wrought from surveillance, or in other words, the ability to " provide general information

with regards to activities within [a prescribed] area.”¹¹ To fulfill the surveillance responsibility to a level commensurate with the import of Canada’s maritime areas requires a sound structure of political instruments in the form of laws, strategies, and policies that compel surveillance, as well as sufficient operational resources for its conduct. It is the contention of this paper that the Canadian Government has not provided the necessary strategic structure for the fulfillment of Canada’s maritime surveillance obligations.

Discussion

In assessing Canada’s ability to fulfill its maritime surveillance obligations, it is necessary to further investigate the origins of these responsibilities and some historical examples of how they were discharged. Further, national and international imperatives will be explored, particularly as they relate to existing and perceived threats to maritime security. Next, Canada’s response to the surveillance challenge will be examined with respect to; the policy and legal mechanisms that provide for and oblige specific surveillance activities, and the operational resources that are availed for the task.¹² From this analysis, it will be demonstrated that the Canadian Government has not provided the overarching guidance required for Canada to discharge its maritime surveillance responsibilities and how this leads to disjointed efforts at the operational level.

The deep-seated significance of Canada’s oceans was undoubtedly apparent to those who fathered the Constitution in 1867. The *Constitution Act of 1867* declares

“exclusive Legislative Authority of the Parliament of Canada... extend[ing] to all Matters coming within [twenty-nine] Classes of Subjects [sic],”¹³ no less than five of which were directly related to the marine environment. The existence of such *matters* such as “Naval Service and Defence, Navigation and Shipping, Regulation of Trade and Commerce, and [Aids to Navigation]”¹⁴ in the country’s foremost governing document is evidence of the vital importance Canadians place on the sea lines of communication (SLOCs).¹⁵ Furthermore, maintaining the power to control maritime matters at the federal level is proof that an obligation to protect our ocean domain has been recognized since confederation. Since protection requires knowledge of ocean use and activity, there exists an implicit constitutional obligation to conduct maritime surveillance.

Peter Haydon asserts that “today, sovereignty is upheld by a state not just for its own good, but also for the collective good.”¹⁶ The collective good, as it applies to world’s oceans, was provided for and articulated in UNCLOS. Recognizing the “importance of the world’s oceans as a supplier of goods, including food ...and services such as trade routes...and a repository of national and global security,”¹⁷ UNCLOS represents the penultimate statute for international oceans governance. However, by itself it does little to compel compliance with generally acceptable ocean practices as it simply permits countries to regulate good ocean stewardship. Although Canada has not yet ratified UNCLOS, the government has accepted jurisdictional responsibility, and thus the obligation of responsible stewardship provided for in UNCLOS, when it passed into law the *Oceans Act* in 1997. Therefore, Canada has clearly accepted the duty to exercise jurisdiction over its ocean domain under the guise of international and domestic law.

“To be sovereign at sea, a state must be able to control whatever takes place in the waters under its jurisdiction.”¹⁸ Haydon identifies three criteria for such jurisdictional maritime control as follows:

- It must be known exactly who is using those waters and for what purpose;
- An unequivocal expression of government authority in those waters must be maintained; and
- The state must be able to respond quickly and effectively to violations of the law or threats to national security.¹⁹

The first of these criterion demands surveillance, which is a pre-condition for the execution of the third. In other words, having the knowledge of what events are occurring in the marine region allows government authorities to interdict undesirable activities whilst safeguarding those that are in the interest of Canadians. Gaining the required knowledge is expensive and requires political willingness to allocate the necessary resources. Canada has historically displayed a national willingness to exert authority over its ocean region in times of global crisis, which is evidence that the obligation to conduct maritime surveillance is recognized – at least when there is an overwhelming imperative. Prior to delving into the Government’s conduct of maritime surveillance without the existence of a global security emergency, it is worth exploring the precedents set during times of crisis.

During the latter part of World War I, Britain vastly underestimated the ability of German U-boats to conduct long-range SLOC interdiction against European supply convoys during their vulnerable departures from the North American seaboard. The discovery by communications intelligence that German submarines U-156, U-117, and U-155 were operating off the coast of Nova Scotia in 1918 and bent on sinking Allied shipping required a hastily prepared Canadian response to protect shipping and to find the

dangerous intruders.²⁰ The resultant efforts in developing a capability to conduct surveillance with ships and aircraft proved worthwhile as North American SLOCs were once more threatened by hostile forces in World War II. Again, Canadian surveillance efforts were critical to national, continental and Allied defence.

The precedents of Canadian participation in the maritime defence of North America during the two world wars led to the development of security arrangements codified in NATO and bilateral defence plans.²¹ As the Cold War unfolded, Canada was bound by a bilateral collective security obligation with the United States to engage in surveillance in its maritime areas beyond that which originated domestically.²² Appreciating the likelihood of Soviet submarine patrols, naval and air units of Canada's military endeavoured to "maintain effective surveillance over the ocean approaches to the continent."²³ These efforts paid off in 1958 when a Soviet submarine was located off the Grand Banks of Newfoundland.²⁴ Four years later, during the Cuban Missile Crisis, "maintaining continual ocean surveillance became the principle task in the defence of the continent, shared between Canadian and American forces."²⁵ Therefore, the Canadian Government has recognized the importance of fulfilling our maritime surveillance responsibilities in times of global crisis. What is less recognized is the imperative to maintain knowledge of activity in Canada's ocean domain in the absence of an international emergency.

Threats to national sovereignty and security provide only one justification for the expenditure of resources in the conduct of surveillance. Threats to other areas of marine jurisdiction also warrant a degree of governmental control and thus a measure of surveillance commensurate with their connection to Canadian vital interests. Broadly,

these threats include unregulated harvesting of living and non-living resources, the detrimental effect of pollution on marine ecology, the use of the oceans to support criminal activity, and hazards to marine safety.²⁶ These challenges will be addressed in the following paragraphs.

The Canadian fishing industry, exclusive of aquaculture, continues to be a growing national economic contributor adding three billion dollars to our GDP in 2002 with an annual growth rate of three percent.²⁷ Despite this ascendant trend, the survivability of this sector is threatened by chronic global over-fishing. The United Nations Food and Agricultural Organization reported in 2001 that between sixty and seventy percent of global traditional fish stocks were already harvested beyond sustainability or were on the verge of over-exploitation.²⁸ The ravages of illegal, unreported and unregulated (IUU) fishing account for nearly 30 percent of the global catch.²⁹ Moreover, the harmful effects of over-fishing extend beyond catch profitability to irreparable habitat and ecological damage.³⁰ As the Department of Fisheries and Oceans has cogently expressed, “without habitat there are no fish: without fish, there are no fisheries.”³¹ Therefore, it is clear that the protection of Canada’s fishing grounds is in the vital interest of Canadians. As a result, Canada requires a surveillance capability to detect and identify vessels engaged in fishing to determine their legitimacy.

In 2000, over sixty percent of Canada’s trade surplus was derived from the export of energy.³² Forty percent of Canada’s energy exports are now originating from maritime regions as Alberta’s reserves continue to decrease.³³ In particular, Canada’s east coast has been the site of extensive offshore exploration for the last decade. While the

Hibernia and Terra Nova oilfields produce nearly 300 thousand barrels of oil per day, significant undersea seismic exploration continues in the hope of exploiting the Hebron and White Rose reserves.³⁴ With the success of the Sable Island gas project, which produces over 420 million cubic feet per day, exploration is now underway to develop a similarly lucrative gas field nearby.³⁵ The output potential of these and other offshore projects could have significant and positive economic impacts. Recognizing the volatility of such activity amidst an already sensitive marine ecology, the federal government has imposed strict guidelines and regulations to protect Canadian economic and environmental interests. Monitoring adherence to this regulatory regime, particularly as vessel traffic increases, requires surveillance.³⁶

Over and above the potential release of pollutants from non-renewable resource exploitation, the threat of pollution within Canada's EEZ also exists from activities such as ocean dumping and bilge discharge. The detrimental effects to the marine environment of bilge discharge from vessels prompted the International Maritime Organization of the United Nations (IMO) to enter into force the International Convention for the Prevention of Pollution from Ships in 1973 and 1978 (MARPOL 73/78). This convention has, to date, been amended twenty times to keep pace of growing environmental concerns and to oblige participating nations to participate in the reduction of marine pollution.³⁷ Despite increased awareness, Transport Canada prosecuted fourteen cases of unlawful bilge discharge involving thousands of litres of oil in 2001.³⁸ Ocean dumping, according to the IMO, accounts for ten percent of all marine pollution, some of which is hazardous in the extreme.³⁹ For instance, a research group under contract with the United States Department of Energy discovered evidence in 1991

that the former Soviet Union used the Arctic Ocean to dispose of large quantities of radioactive waste, including reactors!⁴⁰ Preserving and protecting the marine environment is clearly in the vital interest of Canada and is an obligation explicitly imposed by the *Oceans Act*⁴¹ and UNCLOS.⁴² Moreover, UNCLOS requires that a participating state “shall keep under surveillance the effects of any activities which they permit or in which they engage”⁴³ to enable the protection of the country’s ocean domain.

In addition to the unlawful disposal of pollutants at sea, many other types of illegal activity also threaten Canada’s marine regions. Piracy, terrorism, drug trafficking, and smuggling are all antithetical to our national and vital interests. Recognized as threats to the marine environment or the safe use of the oceans by UNCLOS, participating states are bound to interdict illegal activity in their respective domains. This obligation has been recognized by Canada in the *Oceans Act*, which extends the jurisdiction of the *Criminal Code of Canada* to the sovereign waters of Canada and where a crime “is committed by a person who is in the exclusive economic zone of Canada in connection with exploring or exploiting, conserving or managing the natural resources.”⁴⁴ Therefore, an implied obligation exists for Canada to provide a measure of surveillance to enable detection of activity that is potentially contrary to the law of the land.

“Shipping is perhaps the most international of all the world's great industries - and one of the most dangerous.”⁴⁵ Despite IMO efforts to standardize marine safety protocols, safety is an increasing concern for the world’s maritime nations due to “deep-draught tankers [carrying hazardous material], automated pilotage and navigation systems, and a steady increase in vessel traffic.”⁴⁶ The threat of environmental damage and economic harm arising from unsafe vessel or sea-route conditions requires vigilant

monitoring of maritime activity within Canada's ocean domain. Effective monitoring requires surveillance which enables the "detection of potentially hazardous marine conditions and vessels,"⁴⁷ thus serving to reinforce Canada's obligation to engage in maritime surveillance.

To summarize, the obligation for Canada to undertake surveillance activity arises from international law and convention, domestic law, and from the moral and legal requirement to protect Canadian national and vital interests as they relate to the maritime realm. However, a clear obligation does not necessarily ensure a commensurate governmental response in terms of policy and legal mechanisms to mandate maritime surveillance, nor the investment in operational resources required for its conduct. Rationalizing the obligation with appropriate response instruments is a federal challenge worthy of assessment.

Assessing any federal activity, regardless of magnitude, requires context in terms of national strategy. National strategy is fundamentally a plan in which national and vital interests are meshed with "all the elements of national power – political, economic, military, and informational ...to achieve national objectives."⁴⁸ In the abs

committed itself to “remain vigilant and ready to ensure the protection of Canadians from emerging threats, and [to] work with the United States to address our shared security needs.”⁵⁰ Although the government made commitments in many other arenas such as active internationalism and domestic development, the previous statement signified a pledge to the assurance of regional security.

Fulfilling the strategic commitment to regional security requires that the various subsets of national strategy conform to the pledges made in the Speech from the Throne. The subsets of particular importance in assessing the fulfilment of Canada’s surveillance responsibilities are security strategy and maritime strategy. It is here where cracks in Canada’s ability to fulfill its stated obligations begin to appear. The next section is devoted to examining the alignment of national strategy with its relevant subsets.

Canada has not articulated its security strategy in one omnibus document. Physical security in Canada is spread between two ministries of prime importance led by the Solicitor General (SOLGEN) and the Minister of National Defence (MND).⁵¹ SOLGEN is charged with “protecting Canadians and helping to maintain Canada as a peaceful and safe society,”⁵² whilst MND has the “primary obligation...to protect...the country and its citizens from challenges to their security.”⁵³ These similar mandates produce a manifest overlap in perceived lines-of-responsibilities -- a situation that is exacerbated by the absence of cabinet-level oversight in the form of a national security council. As for departmental strategy declarations, SOLGEN has not promulgated a broad articulation of Canada’s security strategy, opting instead to provide policy on specific issues such as terrorism, security intelligence, security enforcement, and

protective security.⁵⁴ In contrast, national defence strategy, which shares common ground with security, is codified in the 1994 White Paper on Defence. The result is the clouding of domestic security issues and functions between the two departments, particularly with respect to surveillance. As a consequence, the formulation of an adjunct national surveillance strategy remains incomplete. Intended or not, the resultant policy ambiguity places the onus on the departments to decipher the respective import to be placed on maritime surveillance.

The 1994 White Paper on Defence devotes an entire chapter to the protection of Canada. The document asserts that surveillance “is an integral part of the Forces’ activities.”⁵⁵ clearly stating that, “within our area of jurisdiction, Canadian law is [to be] respected and enforced.”⁵⁶ However, the seemingly explicit surveillance task is left undefined in terms of the type and frequency of the surveillance to be conducted. Moreover, the same chapter explains that Canadian surveillance responsibilities are spread among many departments with no clear lead agency. Besides obligating the Department of National Defence (DND) to provide surveillance assistance to other government departments (OGDs) in the fulfilment of their respective mandates, the White Paper is vague in the degree of maritime surveillance required to protect Canada.

Translating vague strategic objectives outlined in the White Paper into discernible tasks for military forces is the job of strategic-level defence planners whose product is the annual Defence Plan. Defence Plan 2002/2003 explicitly assigns broad maritime surveillance tasks to the chiefs of staff for air and maritime forces. For instance Defence Task 2-1 requires that the Chief of Maritime Staff (CMS), with support from the Chief of Air Staff (CAS), “conduct surveillance of Canadian maritime areas of jurisdiction,

concentrating efforts on those areas where Canada's economic interests are most likely to be challenged.”⁵⁷ Clearly, the Canadian Forces are assuming surveillance responsibilities that are heretofore ill defined. However, the level of effort to be expended in the operational conduct of maritime surveillance is not addressed. This is not surprising due to the conflicting requirements to carry out simultaneous bilateral and international defence tasks, extant obligations to OGDs, and a myriad of other functions delineated elsewhere in the White Paper. Therefore, responsibility for determining the quantity and quality of maritime surveillance is further devolved to the environmental chiefs of staff, CMS and CAS, who are encumbered by an ever-increasing array of tasks against which surveillance must compete. This problematic devolution of responsibility is the manifestation of a non-existent national security strategy and an absent national-level surveillance plan.

Another subset of national strategy is maritime strategy, which in the Canadian context is guided by the Ocean's Act. Promulgated in 1997, the purpose of this piece of legislature “is to consolidate existing federal responsibilities and legislation into a single framework that promotes an integrated approach to oceans management.”⁵⁸ Promising in its approach, article 29 of the Act called for “the development and implementation of a national strategy for the management of ... marine ecosystems in waters that form part of Canada or in which Canada has sovereign rights under international law.”⁵⁹ During developmental consultation, one area identified for inclusion was maritime security and enforcement and more specifically “an integrated system of surveillance...to maintain sovereign rights and ensure maritime order and security.”⁶⁰ As directed by the Act, the Minister of Fisheries and Oceans published Canada's Oceans Strategy in 2002. The

strategy indeed addressed the issue of surveillance asserting, “A coordinated system of surveillance...ensures that Canada is aware of the maritime activities in progress.”⁶¹

However, it is doubtful that this statement committed the government, or the Minister, to produce a specific surveillance strategy given the absence of its mention in the section titled “Strategic Directions for Implementing Canada’s Oceans Strategy.”⁶² Therefore, despite federal efforts to merge maritime responsibilities and legislation into one overarching maritime strategy, Canada is still left without a strategic mechanism that facilitates the fulfillment of maritime surveillance obligations.

Overlapping elements of security and maritime strategies could, ideally, be meshed into one omnibus maritime security strategy from which a maritime surveillance strategy could spring. The issue of whether or not Canada has an extant maritime security strategy has figured predominantly in recent discussions of the Standing Committee on National Security and Defence chaired by Senator Colin Kenny. Empowered to explore and make recommendations on matters of security, the Committee has been closely observing the efforts of the Interdepartmental Marine Security Working Group (IMSWG), which was established after the terrorist attacks on 11 September 2001.⁶³ The mandate of the IMSWG is “to coordinate federal response[s] to marine security...and develop possible mitigation initiatives to address [security] gaps.”⁶⁴ In addressing maritime security challenges, the Group is faced with a litany of associated but divergent federal efforts – legal and operational. For instance, federal departments have historically conducted varying degrees of surveillance in the enforcement of specific legal statutes. As an example, Fisheries and Oceans Canada (DFO) funds and executes surveillance aimed at identifying activity that affects the fisheries resource in support of

legislation such as the *Fisheries Act* and the *Coastal Fisheries Protection Act*.⁶⁵

Transport Canada conducts surveillance to monitor pollution as part of their Sustainable Development Strategy to enforce the *Canadian Environmental Protection Act*, the *Arctic Waters Pollution Act* and the *Canada Shipping Act* to name only a few. The RCMP conducts limited maritime surveillance for the detection and prevention of crime on the behalf of SOLGEN and so on. The IMSWG believes that the complexities of the different federal obligations preclude the ability to merge them together under one strategy or policy document.⁶⁶ The Committee is critical of this view fearing that the Canadian Government has not provided the necessary strategic structure for the fulfillment of Canada's physical security obligations particularly when operational resources are allocated to different agencies with overlapping mandates.⁶⁷

The operational task of Canadian maritime surveillance "is formidable, yet the financial resources available will [always] be relatively modest."⁶⁸ Therefore, it follows that policies with the purpose of establishing and sustaining surveillance regimes should provide guidance on "where, how often, [and] to what level of detail"⁶⁹ surveillance efforts are to be applied to make the best use of limited resources. However, such measures of effectiveness do not exist in strategic level policy. Their absence results in dissimilar efforts by different departments to achieve, what they believe, are acceptable levels of maritime surveillance. Conversely, without measures of effectiveness, it is impossible to judge whether or not Canada's national surveillance obligations are fulfilled on a quantitative basis. Instead of a strategic oversight, this may be the manifestation of governmental unwillingness to commit to costly standards of

surveillance. In any event, operational resources are applied to maritime surveillance and are employed primarily by DND, DFO, the Canadian Coast Guard (maintaining a distinct mandate within DFO), and SOLGEN. The ability of each of these agencies to qualitatively contribute to national maritime surveillance responsibilities, as they pertain to ocean surface activity, will be examined in the following paragraphs.

Firstly, DND contributes to domestic maritime surface surveillance using a variety of sources such as aircraft, ships, submarines, high frequency surface wave radar, and information management technologies. Each of these resource groupings brings distinct capabilities to the surveillance task and can reap considerable synergies when operated in tandem. The best resource in DND to achieve wide-area surface surveillance is the CP-140 Aurora.⁷⁰ Although the Aurora is frequently employed in the conduct of domestic surveillance, its availability for such missions has seen a steady decline “due to [budgetary] over-programming [and higher priority] taskings abroad,”⁷¹ particularly the war on terrorism. In 1992, Aurora’s flew nearly 10,000 hours on domestic surveillance patrols.⁷² By comparison, in fiscal year 2002/2003, this number has been reduced to approximately 1350 hours, which includes surveillance support to DFO and SOLGEN.⁷³ This reduction cannot be linked to a commensurate shift in maritime activity nor a statement of surveillance strategy.

Naval ships and submarines also conduct domestic surface surveillance. In keeping with existing memoranda of understanding, the Canadian navy strives to make available 185 sea-days⁷⁴ in support of DFO and SOLGEN mandates.⁷⁵ However, provision of sea-days to OGDs is increasingly difficult due to Canada’s willingness to engage in international affairs, particularly with respect to OP APOLLO, Canada’s

contribution to the war on terrorism in Southwest Asia. Conversely, ships are rarely tasked with purely surveillance missions, under the White Paper *Defence of Canada* task, in the absence of military threats.⁷⁶

Dedicated to a purely surveillance mission is the high frequency radar surface wave radar (HFSWR) which will, in the near future, contribute significantly to the awareness of maritime activity. DND currently operates two HFSWR sites with expansion plans for three to four more.⁷⁷ However, despite the system's advantage of continuous coverage over a fixed area, HFSWR only provides indication of vessel presence and is not capable of identifying a vessel or its activity, nor is it capable of detecting incidents of pollution.⁷⁸ Therefore, HFSWR comes with a built-in capability gap that remains to be filled by vessels or aircraft.

DND makes a significant contribution to surface surveillance through the provision and management of surveillance data. Operation centres in Halifax and Esquimalt collate data from DND, OGD and other surveillance sources to present a near-real time picture of activity in Canada's ocean domain. However, despite considerable expenditure in available resources and time, much marine activity goes unnoticed. In fact, during an average month in which normal surveillance efforts are maintained, DND is only capable of identifying half of the activity present in Canada's Atlantic ocean domain.⁷⁹ Whether or not fifty percent is an acceptable standard to Canadians is a strategic matter – a matter for which a policy has not been promulgated.

Secondly, DFO conducts surveillance with a small number of ocean-going vessels, numerous smaller vessels and aerial patrols to protect Canada's fisheries and associated habitat. Notwithstanding years of fiscal reductions and a commensurate

decline in surveillance activity, DFO has received additional funding to expand its air surveillance program in both quantity and quality.⁸⁰ Although numbers of hours flown and sea-days allocated to the surveillance task are not readily available to the public, DFO makes near-daily flights over Canada's Grand Banks fishing grounds indicating resolve to fulfill their mandate on the Atlantic coast. Despite a limited surveillance scope, vis-à-vis fisheries, DFO does contribute to national maritime surveillance efforts by providing patrol results to DND as a result of regional cooperative agreements.⁸¹ Therefore, DFO contributes appreciably to Canada's existing operational surveillance effort. However, this contribution arises from inter-departmental cooperation and not as a matter of surveillance strategy.

Notwithstanding the above, the Canadian Coast Guard, which is a distinct and largely autonomous part of DFO, operates over one hundred vessels and numerous small aircraft that support the agency's lead role in search-and-rescue, icebreaking, aids to navigation and environmental disaster response.⁸² The Coast Guard also acts in a supporting role for national security and surveillance, a role for which its commissioner, John Adams, has expressed concern. Mr. Adams explained to the Commons Public Accounts Committee in October 2001 that, "the Coast Guard has no capability of monitoring our waters...due to massive spending cuts and poor management."⁸³ Therefore, in the absence of a quantitative analysis, it can be concluded qualitatively that the Coast Guard is not in a position to substantially contribute to the fulfillment of national surveillance obligations.

Lastly, despite suffering reductions leaving it virtually without the ability to conduct surveillance, Transport Canada will soon contribute to the national maritime

surveillance effort. Transport Canada is responsible for instituting the requirement for merchant vessels to be fitted with the Automatic Identification System.⁸⁴ This system has been adopted by the IMO and requires vessels over a yet-to-be-determined size to be fitted with a transponder. The transponder enables “long-range vessel identification and tracking, which will significantly enhance awareness of vessels approaching and operating in Canadian waters.”⁸⁵ Therefore, technology and IMO initiative, vice Canadian maritime surveillance strategy, will enable Transport Canada to contribute to the national surveillance effort.

In applying resources to the task of maritime surveillance, applicable departments are hindered by two important limitations – fiscal resources and the absence of strategy. Heightened security awareness as a result of the events of 11 September 2001 prompted the Government of Canada to turn the tide on years of funding malaise for security-related agencies. Early in 2003, the Government announced that it would spend up to \$172.5 million to enhance maritime security with increased surveillance and tracking of maritime traffic as a top priority.⁸⁶ Split among six departments, this influx of fiscal resources will be applied in the manner in which each of the departments sees fit to meet their security mandates. Despite the partial alleviation of long-standing funding pressure, the departments have yet to be provided with a standard against which their efforts can be quantifiably assessed. As illustrated, the initiative and operational resource commitment by individual departments has contributed much to Canada’s ability to meet its maritime surveillance obligations. However, reductions in the assets available for surveillance, whether ships or aircraft, have necessarily resulted in less surveillance of the sort that can accurately identify vessel activity. Therefore, operational-level efforts to conduct

maritime surveillance and fulfill Canada's corresponding obligations are hindered by the absence of a national strategy that would commit the Government to the allocation of resources and hold relevant departments responsible for surveillance standards. Clearly, the strategic structure, in terms of overarching strategy and standards, does not provide for the fulfill Canada's maritime surveillance obligations.

Conclusion

The security and protection of Canada's ocean domain is not governed by a comprehensive strategy against which resources can be applied. Furthermore, the responsibility for ocean security and protection is spread over many departments. Therefore, surveillance effort to safeguard Canada's vital maritime interests is disjointed and largely unregulated. The application of resources applied to surveillance is done based on relative priorities set by disparate federal mandates executed by departments forced to spread their resources amongst many tasks. Despite the international and domestic requirements to conduct surveillance, the Canadian government has not set the conditions for the fulfillment of these obligations.

The water over which Canada enjoys sovereignty and sovereign rights represents an ocean domain that spreads across 4.7 million square kilometres. As part of our heritage and culture, Canadians expect their oceans and associated ecological systems to be clean, protected, and regulated in accordance with Canadian wishes. Canada has demonstrated a keen interest in the wellness of all oceans by its part as a signatory to the

1982 United Nations Convention on the Law of the Sea, which represents the international legal standard by which oceans are to be governed.

The ocean is a significant generator and enabler of wealth for Canadians. As a trading nation, Canadian national survival depends on access to international markets, the most important of which is that of the United States. Co-located by land, sea, and air with a marketplace that purchases nearly ninety percent of our total exports, Canada has the collective responsibility to share in the security of North American sea approaches. Security of these approaches requires jurisdictional control, which in turn, requires knowledge of all activity within those areas. This knowledge is acquired by the conduct of maritime surveillance. It is through surveillance that Canada can protect national and vital interests over its ocean domain.

Threats to Canadian interests have presented themselves in military and non-military forms. In two world wars and the Cuban Missile Crisis Canada's sovereignty and North America's collective security were placed at risk by foreign powers bent on exploiting our oceans for military gain. Today, activities such as over-fishing, pollution, terrorism and other crime represent clear non-military threats to our sovereign rights and economic interests. Protection against these threats requires surveillance.

Canada has an explicit obligation to protect its ocean domain as codified in international and domestic law. Domestically, the origin of this obligation can be traced back to the *Constitution Act of 1867* and appears more explicitly within contemporary statutes such as the *Oceans Act*, the *Criminal Code*, the *Security Offences Act* and many more. Enforcement of these key statutes requires a regulated and monitored regime of surveillance to enable the detection of activity that may be contrary to Canadian interests.

Unfortunately in Canada, the strategic architecture required to assure security and protection and thus the fulfillment of our surveillance obligations does not exist. Without an omnibus national security strategy, responsibility for security over our oceans is devolved to multiple departments where no clear lead exists. Furthermore, the Canadian Government has not articulated a comprehensive maritime security strategy from which a national surveillance plan could be derived. However, this is not to imply that operational efforts to conduct surveillance do not exist.

Several federal departments engage in the operational task of surveillance to varying degrees. However, the departments that conduct surveillance, such as DND and DFO, do so based on vague strategic guidance. Unwilling to commit to precedent setting levels of surveillance, the federal government has never articulated where and to what degree of specificity maritime surveillance is to be conducted. The result is disparate and inconsistent surveillance efforts that are more driven by fiscal resources than by international and domestic obligations. Therefore, the Canadian Government has not set the necessary conditions for the fulfillment of Canadian maritime surveillance obligations – a situation incongruent with the vital interests represented by Canada’s ocean domain.

Endnotes

¹ Canada. Department of Justice Canada. *Constitution Act, 1867* (1867): n. pag. 26 March 2003. www.laws.justice.gc.ca/en/const/c1867_e.html#distribution. Section 91.

² Canada. Canadian Forces. Military Studies Maritime Component Programme Naval Doctrine Manual. Toronto: Canadian Forces Command and Staff College, 2001. 1-11/18.

³ Strategic Profile: Canada. Toronto: The Canadian Institute of Strategic Studies, 2003. 2.

⁴ “Canadian Government Announces Port Security Funding.” Shipping News. Chamber of Maritime Commerce (2003): 6pp. 24 February 2003. www.cmc-ccm.com/shipping.php?choice+560. 3.

⁵ United Nations. *United Nations Convention on the Law of the Sea, 1982* (entered into force 1994): n. pag. 15 March 2003. www.un.org/depts/los/convention_agreements/texts/unclos/closindx.htm. Art 3.

⁶ Henry Campbell Black. Black’s Law Dictionary. St. Paul: West Publishing Co, 1933. n. pag. 29 March 2003. www.miccosukeeseminolenation.com/sovereignty_defined.htm. 1.

⁷ *United Nations Convention on the Law of the Sea, 1982*. Art 56.

⁸ *Ibid.*, art 56.

⁹ Glen Herbert. Canada’s Ocean Dimension: A Factbook. The Niobe Papers Volume 11. Halifax: Maritime Affairs, 1999. 4.

¹⁰ *Ibid.*, 1.

¹¹ Canada. Department of National Defence. Leadmark: The Navy’s Strategy for 2020. Ottawa: Directorate of Maritime Strategy, 2001. 131.

¹² François N. Bailet, Fred W. Crickard and Glen J. Herbert. Integrated Maritime Enforcement: A Handbook. Halifax: Centre for Foreign Policy Studies, Dalhousie University, 1999. 22. In this publication, the authors offer a framework upon which a nation’s response to maritime challenges, such as surveillance can be assessed. The framework encompasses political, legal, operational, and non-state responses as elements of maritime enforcement. The present paper folds political and legal responses into one general category for assessment. Operational responses are considered separately while non-state responses are beyond the scope of this paper.

¹³ *Constitution Act, 1867*. Art 91.

¹⁴ *Ibid.*

¹⁵ Sir Julian Corbett and Admiral Sir Herbert Richmond, in their theories of sea control, described the sea lines of communication to be the critical links between major ports and bases that facilitated trade. To protect trade, it was their contention that protecting the waters over which it travelled was of vital importance to maritime trading nations. Peter T. Haydon. Sea Power and Maritime Strategy in the 21st Century: A “Medium” Powers Perspective. Maritime Security Occasional Paper No. 10. Halifax: Centre for Foreign Policy Studies Dalhousie University, 2000. 49.

¹⁶ *Ibid.*, 25.

¹⁷ Herbert, Canada’s Ocean Dimension: A Factbook. 6.

¹⁸ Haydon, Sea Power and Maritime Strategy in the 21st Century: A “Medium” Powers Perspective. 21, 50.

¹⁹ *Ibid.*

²⁰ Roger Sarty. The Maritime Defence of Canada. Toronto: Canadian Institute of Strategic Studies, 1996. 7pp. 30 March 2003.
www.civilization.ca/academ/articles/sart1_1e.html. 3.

²¹ Peter T. Haydon. The 1962 Cuban Missile Crisis: Canadian Involvement Reconsidered. Toronto: The Canadian Institute of Strategic Studies, 1993. 47.
Surveillance tasks were delegated to Canadian forces within Canadian maritime areas of interest in NATO doctrine and in the Canada/US Basic Security Plan of 1946.

²² *Ibid.*

²³ *Ibid.*, 82.

²⁴ *Ibid.*

²⁵ *Ibid.*, 81.

²⁶ François N. Bailet, Fred W. Crickard and Glen J. Herbert. Integrated Maritime Enforcement: A Handbook. 14-21.

²⁷ United States. Department of Agriculture – Foreign Agriculture Service. AgExporter: The Monthly Magazine for Food and Agricultural Exporters January, 2003. 31 March 2003. www.fas.usda.gov/info/agexporter/2003/January/pgs6-8.pdf. 6.

²⁸ Rome. The United Nations Food and Agriculture Organization. Press Release 01/08. 22 February 2001: n. pag. 31 March 2003.

www.fao.org/WAICENT/OIS/PRESS_NE/PRESSENG/2001/pren0108.htm.

²⁹ Ibid.

³⁰ François N. Bailet, Fred W. Crickard and Glen J. Herbert. Integrated Maritime Enforcement: A Handbook. 15.

³¹ Canada. Fisheries and Oceans Canada. 1998-99 Estimates: A Report on Plans and Priorities. 1999. 1 April 2003. www.dsp.psd.communication.gc.ca/collection/BT31-2-1999. 8.

³² Canada. EIA Country Analysis Briefs. December 2002. n. pag. 31 March 2003. www.eia.doe.gov/emeu/cabs/canada.html.

³³ Ibid.

³⁴ Ibid.

³⁵ Ibid.

³⁶ François N. Bailet, Fred W. Crickard and Glen J. Herbert. Integrated Maritime Enforcement: A Handbook. 18.

³⁷ United Nations. International Maritime Organization. Safer Shipping, Cleaner Oceans. 5 May 2003. www.imo.org/home.asp. 1.

³⁸ Canada. Transport Canada. Backgrounder: Protection Against Ship Source Marine Pollution. 10 April 2003. 5 May 2003. www.tc.gc.ca/atl/marine/pollution/menu.htm.

³⁹ François N. Bailet, Fred W. Crickard and Glen J. Herbert. Integrated Maritime Enforcement: A Handbook. 16.

⁴⁰ United States. Department of Energy. Northern Exposure: ESD researchers lead Arctic Ocean radioactive contamination studies. August 1994. 5 May 2003. www.ornl.gov/publications/labnotes/aug94/arctic.html. Revelations on Soviet nuclear waste dumping off its arctic shores occurred in 1991. One senior Soviet official said that radioactive waste, in leaky containers, was disposed over a 20-year period, and included the damaged reactor core from the nuclear-powered icebreaker Lenin, which suffered a meltdown in 1966.

⁴¹ Canada. Department of Justice Canada. *Oceans Act, 1996* (1996): n. pag. 26 March 2003. <http://laws.justice.gc.ca/en/O-2.4/>. Articles 12, 14.

-
- ⁴² *United Nations Convention on the Law of the Sea, 1982*. Art 192.
- ⁴³ *United Nations Convention on the Law of the Sea, 1982*. Art 204.
- ⁴⁴ Canada. Department of Justice Canada. *Criminal Code of Canada* (1985): n. pag. 28 March 2003. <http://laws.justice.gc.ca/en/C-46/>. Art. 477.1.
- ⁴⁵ United Nations. International Maritime Organization. “Introduction.” 5 May 2003. www.imo.org/Safety/mainframe.asp?topic_id=59.
- ⁴⁶ François N. Bailet, Fred W. Crickard and Glen J. Herbert. Integrated Maritime Enforcement: A Handbook. 19.
- ⁴⁷ *Ibid.*, 20.
- ⁴⁸ Canadian Forces. Military Studies Maritime Component Programme Naval Doctrine Manual. 1-11
- ⁴⁹ Canada. The Speech from the Throne. The Canada We Want. “Canada and the World” (2002): pp 2. 5 May 2003. www.mariaminna.com/speech/international_en.doc. 1.
- ⁵⁰ *Ibid.*
- ⁵¹ Different departments and agencies view security differently. Economic security is a concern to Canada Customs and Revenue Agency and Revenue Canada while environmental security is the mandate of Environment Canada, Transport Canada and Fisheries and Oceans Canada. For this reason, *physical* security is used to describe the collective efforts of DND and SOLGEN.
- ⁵² Canada. Department of the Solicitor General. “Overview of the Organization.” 13 September 2002: 7 pars. 5 May 2003. www.sgc.gc.ca/about/overview_e.asp. Par 1.
- ⁵³ Canada. Department of National Defence. 1994 White Paper on Defence. “Introduction” (1994): 2 pp. 23 December 2002. 5 May 2003. www.forces.gc.ca/admpol/eng/doc/5112_e.htm. 2.
- ⁵⁴ Canada. Canadian Security and Intelligence Service. “Solicitor General of Canada.” 1 November 2000. 5 May 2003. www.csis-scrs.gc.ca/eng/menu/solgen_e.html.
- ⁵⁵ Canada. National Defence. 1994 White Paper on Defence. “Chapter 4” (1994): 6 pp. 23 December 2002. 5 May 2003. www.forces.gc.ca/admpol/eng/doc/5116_e.htm. 3.
- ⁵⁶ *Ibid.*

⁵⁷ Canada. The Department of National Defence. Defence Plan. “Defence Plan On-line” (2002/2003): n. pag. 5 May 2003. www.vcds.dnd.ca/DPOnline/Structure_e.asp?StructureID=1&CategoryID=4&WithParents=0&SelectedDPMenu=1.

⁵⁸ Herbert, Canada’s Ocean Dimension: A Factbook. 53.

⁵⁹ *Oceans Act, 1996*. Art 29.

⁶⁰ Herbert, Canada’s Ocean Dimension: A Factbook. 55.

⁶¹ Canada. Fisheries and Oceans Canada. Canada’s Ocean Strategy. Ottawa: Oceans Directorate, 2002. 18.

⁶² *Ibid.*, 21.

⁶³ Canada. The Standing Senate Committee on National Security and Defence. Ottawa. Testimony Mr G. Frappier, Monday, April 7, 2003, unedited transcript.

⁶⁴ *Ibid.*

⁶⁵ Canada. Fisheries and Oceans Canada. “Vision and Mission.” 12 December 2002. 5 May 2003. www.mar.dfo-mpo.gc.ca/e/vision_e.htm.

⁶⁶ The Standing Senate Committee on National Security and Defence. Testimony Mr G. Frappier.

⁶⁷ The Standing Senate Committee on National Security and Defence. Testimony Senator Banks.

⁶⁸ Canada. Department of National Defence. Analysis of National Surveillance Capabilities: Assessing Performance Against Air and Surface Targets. ORA Project Report PR677. Ottawa: Operational Research and Analysis Directorate of Mathematics and Statistics, 1994. 1.

⁶⁹ *Ibid.*

⁷⁰ The Standing Senate Committee on National Security and Defence. Testimony VAdm Buck.

⁷¹ Canada. Canadian Forces. CAS Level 1 Business Plan 2002 (2002): pp 13. 28 March 02. http://airforce.dwan.dnd.ca/Main/Biblio/FinalPart1_Impact_Assessment.pdf. 2.

⁷² Analysis of National Surveillance Capabilities: Assessing Performance Against Air and Surface Targets. ORA Project Report PR677. 11.

⁷³ Canada. Canadian Forces. 1 CAD Level 2 Business Plan 2002. (2002): pp 18. 28 March 02.
http://winnipeg.mil.ca/a7/A7BMR/BP/BPs/L2/2002/L2_BP_2002_Part_1_e.pdf. 6.

⁷⁴ Sea-days describe a unit of effort expended by one ship on any particular mission that requires a ship to be at sea or otherwise not in port.

⁷⁵ Canada. Canadian Forces. MARCOM Capability Planning Guidance 2002. Ottawa: Queen's Printer, 2002. Annex G.

⁷⁶ The author has experience with surveillance at both the tactical and operational levels. As a commanding officer of a coastal surveillance unit with Maritime Forces Pacific and as an operational planner for Maritime Forces Atlantic, the author has witnessed a decline in purely surveillance patrols. Although Maritime Forces Pacific continues to deploy Maritime Coastal Defence Vessels on sovereignty and surveillance patrols, these are increasingly secondary missions to training deployments. Maritime Forces Atlantic conducts surveillance with surface units almost exclusively as a secondary mission to Fisheries Patrols, training, or transits to and from operational theatres.

⁷⁷ The Standing Senate Committee on National Security and Defence. Testimony VAdm Buck.

⁷⁸ Analysis of National Surveillance Capabilities: Assessing Performance Against Air and Surface Targets. ORA Project Report PR677. 7.

⁷⁹ Capt(N) Laurence Hickey, Assistant Chief of Staff Plans and Operations, Maritime Forces Atlantic. Personal interview. 31 March 2003.

⁸³ Peter O’Neil. “We Cannot Protect Canada's Waters.” The Vancouver Sun. 2 December 2002. 2 December 2002. www.canada.com/vancouver/vancouver_sun/.

⁸⁴ “Canadian Government Announces Port Security Funding.” Shipping News. Chamber of Maritime Commerce. 3.

⁸⁵ Ibid.

⁸⁶ Canada. Transport Canada. “Government of Canada Announces up to \$172.5 million in New Marine Security Projects.” News release No. GC001/03. 22 January 2003. 6 May 2003. www.tc.gc.ca/mediaroom/releases/nat/2003/03-gc001.htm.

Bibliography

1. Bailet, François N., Fred W. Crickard and Glen J. Herbert. Integrated Maritime Enforcement: A Handbook. Halifax: Centre for Foreign Policy Studies, Dalhousie University, 1999.
2. Black, Henry Campbell. Black's Law Dictionary. St. Paul: West Publishing Co, 1933. n. pag. 29 March 2003.
www.miccosukeeseminolenation.com/sovereignty_defined.htm.
3. Canada. Canadian Coast Guard. "The Canadian Coast Guard: National Institution, National Asset" (2003): 7 pars. 5 May 2003. www.ccg-gcc.gc.ca/overview_e.htm.
4. Canada. Canadian Forces. 1 CAD Level 2 Business Plan 2002 (2002): pp 18. 28 March 02.
http://winnipeg.mil.ca/a7/A7BMR/BP/BPs/L2/2002/L2_BP_2002_Part_1_e.pdf.
5. Canada. Canadian Forces. CAS Level 1 Business Plan 2002 (2002): pp 13. 28 March 02. http://airforce.dwan.dnd.ca/Main/Biblio/FinalPart1_Impact_Assessment.pdf.
6. Canada. Canadian Forces. MARCOM Capability Planning Guidance 2002. Ottawa: Queen's Printer, 2002.
7. Canada. Canadian Forces. Military Studies Maritime Component Programme Naval Doctrine Manual. Toronto: Canadian Forces Command and Staff College, 2001.
8. Canada. Canadian Security and Intelligence Service. "Solicitor General of Canada." 1 November 2000. 5 May 2003. www.csis-scrs.gc.ca/eng/menu/solgen_e.html.
9. Canada. Department of Justice Canada. Constitution Act, 1867 (1867): n. pag. 26 March 2003. www.laws.justice.gc.ca/en/const/c1867_e.html#distribution.
10. Canada. Department of Justice Canada. Criminal Code of Canada (1985): n. pag. 28 March 2003. <http://laws.justice.gc.ca/en/C-46/>.
11. Canada. Department of Justice Canada. Oceans Act, 1996 (1996): n. pag. 26 March 2003. <http://laws.justice.gc.ca/en/O-2.4/>.
12. Canada. Department of National Defence. Analysis of National Surveillance Capabilities: Assessing Performance Against Air and Surface Targets. ORA Project Report PR677. Ottawa: Operational Research and Analysis Directorate of Mathematics and Statistics, 1994.

-
13. Canada. The Department of National Defence. Defence Plan. “Defence Plan Online” (2002/2003): n. pag. 5 May 2003.
www.vcds.dnd.ca/DPOnline/Structure_e.asp?StructureID=1&CategoryID=4&WithParents=0&SelectedDPMenu=1.
 14. Canada. Department of National Defence. Leadmark: The Navy’s Strategy for 2020. Ottawa: Directorate of Maritime Strategy, 2001.
 15. Canada. Department of National Defence. 1994 White Paper on Defence, (1994): n. pag. 23 December 2002. 5 May 2003.
www.forces.gc.ca/admpol/eng/doc/5112_e.htm.
 16. Canada. Department of the Solicitor General. “Overview of the Organization.” 13 September 2002: 7 pars. 5 May 2003. www.sgc.gc.ca/about/overview_e.asp.
 17. Canada. EIA Country Analysis Briefs. December 2002. n. pag. 31 March 2003.
www.eia.doe.gov/emeu/cabs/canada.html.
 18. Canada. Fisheries and Oceans Canada. Canada’s Ocean Strategy. Ottawa: Oceans Directorate, 2002.
 19. Canada. Fisheries and Oceans Canada. 1998-99 Estimates: A Report on Plans and Priorities. 1999. 1 April 2003.
www.dsp.psd.communication.gc.ca/collection/BT31-2-1999.
 20. Canada. Fisheries and Oceans Canada. “Vision and Mission.” 12 December 2002. 5 May 2003. www.mar.dfo-mpo.gc.ca/e/vision_e.htm.
 21. Canada. The Speech from the Throne. The Canada We Want. “Canada and the World” (2002): pp 2. 5 May 2003.
www.mariaminn.com/speech/international_en.doc.
 22. Canada. The Standing Senate Committee on National Security and Defence. Ottawa. Senator Colin Kenny, Chair. Monday, April 7, 2003, unedited transcript.
 23. Canada. Transport Canada. Backgrounder: Protection Against Ship Source Marine Pollution. 10 April 2003. 5 May 2003.
www.tc.gc.ca/atl/marine/pollution/menu.htm.
 24. Canada. Transport Canada. “Government of Canada Announces up to \$172.5 million in New Marine Security Projects.” News release No. GC001/03. 22 January 2003. 6 May 2003.

-
25. "Canadian Government Announces Port Security Funding." Shipping News. Chamber of Maritime Commerce (2003): 6pp. 24 February 2003. www.cmc-ccm.com/shipping.php?choice+560.
 26. Haydon, Peter T. Sea Power and Maritime Strategy in the 21st Century: A "Medium" Powers Perspective. Maritime Security Occasional Paper No. 10. Halifax: Centre for Foreign Policy Studies Dalhousie University, 2000.
 27. Peter T. Haydon. The 1962 Cuban Missile Crisis: Canadian Involvement Reconsidered. Toronto: The Canadian Institute of Strategic Studies, 1993.
 28. Herbert, Glen. Canada's Ocean Dimension: A Factbook. The Niobe Papers Volume 11. Halifax: Maritime Affairs, 1999.
 29. Hickey, Capt(N) Laurence, Assistant Chief of Staff Plans and Operations, Maritime Forces Atlantic. Personal interview. 31 March 2003.
 30. O'Neil, Peter. "We Cannot Protect Canada's Waters." The Vancouver Sun. 2 December 2002. 2 December 2002. www.canada.com/vancouver/vancouversun/.
 31. Rome. The United Nations Food and Agriculture Organization. Press Release 01/08. 22 February 2001: n. pag. 31 March 2003. www.fao.org/WAICENT/OIS/PRESS_NE/PRESSENG/2001/pren0108.htm.
 32. Sarty, Roger. The Maritime Defence of Canada. Toronto: Canadian Institute of Strategic Studies, 1996. 7pp. 30 March 2003. www.civilization.ca/academ/articles/sart1_1e.html.
 33. Strategic Profile: Canada. Toronto: The Canadian Institute of Strategic Studies, 2003.
 34. United Nations. International Maritime Organization. Safer Shipping, Cleaner Oceans. 5 May 2003. www.imo.org/home.asp.
 35. United Nations. *United Nations Convention on the Law of the Sea, 1982* (entered into force 1994): n. pag. 15 March 2003. www.un.org/depts/los/convention_agreements/texts/unclos/closindx.htm.
 36. United States. Department of Agriculture – Foreign Agriculture Service. AgExporter: The Monthly Magazine for Food and Agricultural Exporters January, 2003. 31 March 2003. www.fas.usda.gov/info/agexporter/2003/January/pgs6-8.pdf.

37. United States. Department of Energy. Northern Exposure: ESD researchers lead Arctic Ocean radioactive contamination studies. August 1994. 5 May 2003.
www.ornl.gov/publications/labnotes/aug94/arctic.html.