CANADIAN NAVAL REVIEW

VOLUME 8, NUMBER 1 (SPRING 2012)

The Need, Costs and Benefits of a Canadian Naval Presence in the Arctic

Making a Difference in Arctic Naval Research: HMCS *Cedarwood*, 1948 to 1956

A Rock Group: Ships Fated for Failure, Stranded by a System

Penguins, Oil and Frigates: Viewing Falkland Island Politics from the Inside

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Canadian Naval Review is published quarterly by the Centre for Foreign Policy Studies (CFPS) at Dalhousie University. It is a professional journal examining a wide range of maritime security issues from a Canadian perspective. In particular it focuses on strategic concepts, policies, operations, history and procurement of the Canadian Navy, plus national security in general and marine/ocean affairs. This initiative brings together members of the Canadian defence and academic communities and is a component of the Centre's Maritime Security Program.

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- provide a source for the public examination of Canadian naval and maritime history and for the development of lessons learned.

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...dit: Cpl Ronnie Krinie, Formation Imaging Services Halifax

HMCS ***Charlottetown*** *heads into big waves during* ***Operation Active Endeavour*** *with Standing NATO Maritime Group 1 in the Mediterranean Sea on 7 February 2012.*

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Editorial

What is Maritime Security?

What is maritime security? The answer to that question should be simple but unfortunately it is invariably ambiguous. Should we be surprised? No! Ambiguity, beloved of lawyers and politicians for centuries, is commonplace today in most national security discussions. The problem is that the concept of maritime security isn't generally understood. Canadians seem to mask their lack of knowledge in saying it's a government 'thing,' and then hoping somebody else will look after it. They are partly right in thinking it is a government responsibility but very wrong in thinking it's somebody else's business. Maritime security is an important concept and needs to be understood widely particularly as it promises to be expensive in the years to come.

Credit: MCpl Chris Ward, CFB Esquimalt Imaging Services

RCMP and Canadian Forces personnel patrol in rigid-hull inflatable boats during exercises held in advance of the 2010 Vancouver Olympics.

So, in one short editorial let us see if we can begin to make some sense out of the concept. But where to begin? Maybe the best place to start is at the beginning – from first principles. The foundation of national security, which is really what this is all about, comes from a government's obligation to protect its citizens. But from what should they be protected? The list of threats is infinite, ranging from military attack to plague, flood, fire and pestilence. But the obligation to protect cannot be all-encompassing; it is a physical impossibility. Nor should we expect the government to protect us from the things we do to ourselves; there has to be some self-accountability. There is, however, a perfectly reasonable expectation on the part of citizens that their government will protect them from external threats and things over which they have no control – such as earthquakes, storms and premeditated violence.

Canadian governments have always accepted that obligation; willingly at times and reluctantly at others. During the relatively unambiguous years of the Cold War the government took steps to protect the country and its citizens through a structure of collective security agreements that largely determined Canadian defence policy and force structure. That policy remained distinctly Canadian because the extent of the military commitment was always a Canadian sovereign prerogative. Force levels were a compromise in which some political risk was accepted in order to limit defence spending. In accepting a degree of risk to national security, the difficult political question was how much risk is acceptable? There has never been an easy answer to that question and some would argue that there never can be.

Even though most people saw a Cold War confrontation as highly unlikely save through political miscalculation, the country still had to be prepared for the worst-case scenario. Contingency plans centred around a national war book that pre-scripted not only the graduated, precautionary responses to a deteriorating global political situation but also the measures required of all government departments and provincial governments for the overall safety of the country and Canadian citizens. This was indeed a 'whole-of-government' approach.

Contrary to expectation, the end of the Cold War did not result in a period of global peace and stability. By 1990 the world had begun to deteriorate into a rather ugly mosaic of local wars as minorities sought independence

Credit: MCpl Angela Abbey, Canadian Forces Combat Camera

Twenty-first century national security isn't one dimensional. In this photo a CH-124 Sea King takes off near Trouty, Newfoundland, in support of the Hurricane Igor relief efforts in 2010.

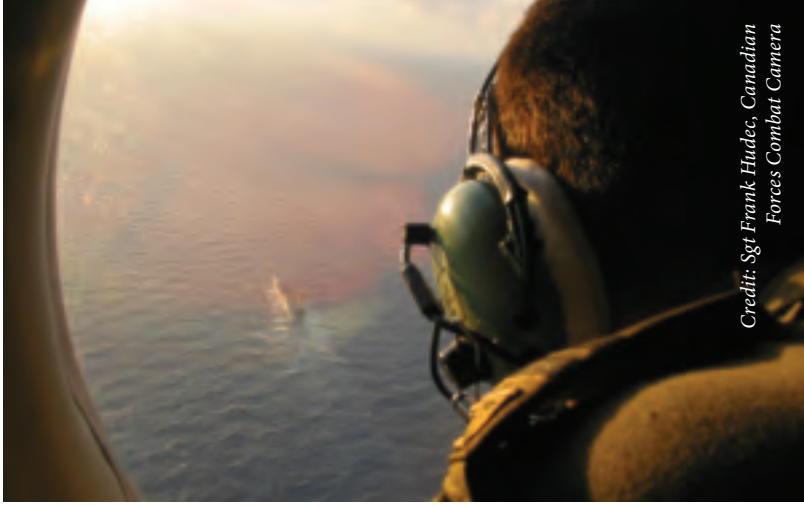
and oppressed people sought freedom. Most industrialized countries saw this instability as a threat to the global economy, and in many instances those wars led to situations which were an affront to concepts of human dignity. This was adequate rationale for military intervention under UN and NATO auspices. In the process, Canadian national security took on a different aspect. The country was no longer under direct threat, save economically, and the process of responding to crises became the business of diplomats, aid agencies and the military. Whole-of-government contingency plans for domestic security were no longer needed.

But there was a downside to the new concept of crisis management. The presence of Western peacekeepers and peacemakers was frequently resented, especially in the Middle East. Anger over the interventions and at Western society generally evolved into global terrorism that placed the citizens of the intervening countries at risk. Terrorist attacks on the United States on 11 September 2001, and later on other countries, heralded the new era. The Americans, who suffered the greatest damage and loss of life in the attacks of September 2001, took measures that many still see as excessive. Other countries were forced to take both defensive and deterrent measures. As politicians quickly discovered, the cost of providing full security was prohibitive, and so some risk had to be accepted. Again, the burning political question became how much risk is acceptable? Today, that question remains unanswered.

While all this was going on, the world started to be aware of the fragility of the earth's climate and ecosystems and of the potential for widespread destruction from climate change. The increasing incidence of natural disasters, especially in densely populated areas, gave rise to further public concerns for safety. Also, over-population and bad resource management gave rise to a new series of problems in several parts of the world where shortages of food, fresh water and medical care became compelling reasons for intervention and assistance. Even wealthy, industrialized countries, such as Canada, found that they were not immune to the direct and indirect effects of climate change and environmental disaster.

Simply, the last few years have seen the evolution of national security into a many-headed hydra that virtually defies precise definition.

Coming back to maritime security, we need to look at it within the broader context of the new national security model. A few examples show that maritime security is no less complex and faces many of the same political and fiscal problems. For instance, global and Canadian examples exist for all of the following scenarios:



An airman from 405 Maritime Patrol Squadron observes a contact of interest from a CP-140 Aurora maritime patrol aircraft.

- a shipwreck, collision, or fire at sea has widespread environmental and safety consequences;
- criminal acts at sea ranging from piracy to the illegal transport of people and contraband to theft and intimidation have far-reaching social and economic effects;
- storms and natural disasters, such as hurricanes and earthquakes, have extensive implications ashore especially on coastal communities;
- terrorism and premeditated violence or even threats of those actions undermine national security at many levels; and
- deliberate and accidental discharges of contaminants have the potential for environmental damage with implications on wildlife and fish stocks.

So, maritime security today potentially requires government intervention in just about every aspect of ocean use. The problem, which frustrates political leaders as much as citizens, is how to identify threats ahead of time and then how to take action to prevent them, minimize their effects and restore stability in the aftermath. This is a seemingly impossible undertaking. Most people agree that the best path to effective maritime security is based upon international cooperation, comprehensive surveillance over all waters under national jurisdiction and adjacent to them, and the ability to respond to real and potential threats quickly. Those capabilities are not cheap and are not unique to any one government agency. Inasmuch as no country can be an island unto itself today, no government department can be insular in terms of maritime security. So, a whole-of-government approach is logical. But we are left to ask, how should it be controlled at the highest political level and how is risk assessed?

Before Canadians are invited to foot the bill for maritime security perhaps there is a need for a public discussion on an appropriate level of security, how to maintain it, and the associated levels of risk under planned funding levels.

Peter Haydon

The Need, Costs and Benefits of a Canadian Naval Presence in the Arctic

Rob Huebert

Credit: Cpl Dany Veillette, CF Joint Imagery Centre

*Commander A.C. Grant observes floating ice from the bridge of HMCS **Toronto** in the Davis Strait while the ship's company is at action stations after a simulated iceberg collision.*

Canadian Arctic maritime security is about to enter a new era. The government of Stephen Harper has made several decisions that promise to reshape Canada's maritime presence in its Arctic waters and significantly adjust its maritime orientation. Historically Canada has looked only to the Atlantic and Pacific Oceans. It will now be extending its maritime security capabilities to the Arctic Ocean.

Canadian naval power has also traditionally been developed in a reactive manner in close collaboration with either the United Kingdom or the United States. The possibility that Canada will develop a class of naval vessels in anticipation of a new maritime environment without substantial American or British input is a relatively new experience.

By developing a new naval capability in anticipation rather than in reaction to a changing international environment, Canadian decision-makers face numerous challenges. Perhaps the most difficult is anticipating the future of the Arctic and therefore what will best protect Canadian interests. While there is no question that the Arctic region is experiencing substantial changes, it is uncertain what the new security environment will look like in the medium and long term. Further challenging decision-makers is that the key decisions are being made in a context of international economic uncertainty. Canada does not have surplus resources and, therefore, every expenditure must be justified. Canadian decision-makers also face the challenge of developing a new capability in a region in which the navy has traditionally had little involvement. The navy will be required to develop relationships with other actors such as the Canadian Coast Guard (CCG) and engage with Canada's northern neighbours which already have significant Arctic naval capabilities.

This article will examine several of the challenges faced by Canada as it develops its Arctic maritime capacity. The first challenge will be to come to an understanding of the emerging Arctic security environment. It is by no means clear how the Arctic Ocean's security requirements will develop in the coming decades. The second challenge will arise as the Canadian Navy relearns how to operate in the Arctic.

The Emerging Maritime Arctic Security Environment

The Arctic is in an era of transformation. It has experienced such drastic transformations in the prehistoric past, but humans were not there to see it. The forces of climate change have been felt the strongest in the Arctic. It is possible, according to leading experts on sea ice, that the Arctic could become ice-free in the summer months by 2020. The loss of its multi-year ice cover will have ramifications that will be felt worldwide in ways that are not yet fully understood. This loss of the ice cover will affect the region's weather patterns, the current systems and will play a role in the melting of the Greenland ice sheets. That in turn will significantly affect sea level rises.[1]

At the same time that the Arctic is being physically transformed, there is an equally dramatic focus on the region's natural resources. With a reduction of the Arctic sea ice there have been increased efforts to develop the natural resources that have been unattainable until now. Already substantial amounts of diamonds, oil and natural gas have been found in the region. But these may be only the tip of the iceberg; there may be much more waiting to be discovered.

The development of new resources can progress very quickly in the Arctic region. This was true of the discovery and exploitation of the North Slope oil reserves in Alaska, and we have already seen it in the arrival of large numbers of tour vessels off the coast of Greenland. As new resources are discovered in the maritime regions of the Canadian Arctic, they too could be developed quickly and place substantial demands on Canadian capabilities. Any large-scale economic development, including oil and gas, tourism, fishing and base metals such as iron ore, will place demands on Canada in terms of search and rescue, environmental response, policing and regulatory enforcement. Given the lack of infrastructure, Canada will be hard-pressed to respond to any of these demands.

The third transformational force that is reshaping the Arctic maritime security environment is the changing international legal regime. The United Nations Convention on the Law of the Sea (UNCLOS) has allowed coastal states worldwide to redraw their maritime boundaries with the creation of new zones of control. This has included the Arctic Ocean as well. As Arctic states become increasingly interested in the region, so too do non-Arctic states – for example, both China and France have expressed interest in the promise of resources and the potential for new shipping routes.

The five Arctic coastal states – Canada, the United States, Norway, Russia and Denmark (for Greenland) – have all agreed to resolve peacefully any differences regarding the delimitation of these new resources.[2] As an illustration of this, Russia and Norway have settled one of their long-term boundary disputes.

These three forces – climate change, resource development and the expanding international legal jurisdictions – are not the only forces that are transforming the Arctic. Traditional indigenous lifestyles are also being transformed. However, these three forces are the most important to the new maritime security environment. The net impact has been a perception that the region will soon be more accessible than it has been. With that accessibility has come two contradictory forces. On the one hand there is the desire to ensure that the Arctic Ocean continues to develop in a peaceful and cooperative fashion. On the other hand there are indications that many of the coastal states are beginning to prepare for a regime that may not be cooperative.

The challenge facing decision-makers is that if they anticipate incorrectly, Canada will face significant challenges to maintaining its Arctic maritime security. If the Arctic region is indeed becoming more cooperative and Canada invests heavily on platforms that can be perceived as being overtly militaristic, its actions could reduce the spirit of cooperation. In the worst case scenario, the Canadian actions could spark reactions that could lead to an arms race.[3] But if Canada does not begin investing now in a stronger enforcement capability and the region becomes more conflictual, Canada could find its Arctic region at

The 53,000 tonne Leiv Eiriksson oil rig off the coast of Greenland.

risk to the actions of others. It is imperative that Canada make the right decisions.

All of the Arctic states and many of the non-Arctic states have repeatedly made formal statements about their desire to maintain the high level of cooperation that now exists in the region. There have also been efforts to resolve existing maritime disputes and to build new forms of cooperation. As mentioned earlier, the Russians and Norwegians have resolved their longstanding maritime dispute in the Barents Sea, and the members of the Arctic Council negotiated a search and rescue treaty in 2011.[4] While the treaty is somewhat lacking in specifics, this is the first treaty about the Arctic region negotiated since the 1974 Polar Bear agreement. Most observers have hailed it as an important step forward for Arctic cooperation.

Despite these indicators of the efforts to develop the Arctic marine environment in a cooperative fashion, there are other indicators that suggest that contradictory forces are also at work. There are three main indicators of increased maritime tensions in the region.

First, there have been increased defence expenditures dedicated to the improvement of naval capabilities in the Arctic region. The Canadian decision to improve its ability to operate in the Arctic region follows expenditures already made by Norway and Denmark to improve their naval and coast guard capabilities for operations in northern waters. Russia has dedicated considerable resources to improving and modernizing its submarine forces and there are indications that the United States has also taken steps to improve its submarine capabilities in the high north.[5] As well, Sweden has announced that it will be rebuilding its naval capabilities for use in northern waters. In a time of economic uncertainty the decision by all of these states to invest in improving their naval and coast guard capabilities is telling.

Second, there has also been an increase in both naval exercises and operations in the Arctic since the middle of the 2000s. At the end of the Cold War only the United States conducted any exercises in the region, and these exercises were conducted in the summer months and took place in the south of Alaska. It was not until 2002 that Canada re-initiated exercises that had been suspended in 1989. Since 2002 Norway, Finland, Sweden, Denmark, Russia, the United States and Canada have all begun to carry out large and complicated exercises and operations. These exercises are expensive and require substantial planning and preparation. Once again this suggests a substantial change in attitude amongst the Arctic states.

Third, since the beginning of the 2000s, Russia has given renewed attention to rebuilding its nuclear deterrent with a special emphasis on its submarine-carried missiles (SSBNs and SSNs) based in Murmansk, and has been pushing ahead in the construction of a new class of SSBNs and SSNs. This has led to renewed American submarine activity in the Arctic region, and US submarines began to appear in Arctic waters in 2009. While there has been no confirmation, the Americans apparently have given their most recent class of submarines some capability to operate in ice-covered waters. It is too early to tell, but it may be that the Americans and Russians are returning to a variant of the cat and mouse games that were played during the Cold War.

Credit: Cpl Andrew L. Davis

General Walt Natynczyk greets Admiral Tim Sloth Jørgensen, the Danish Chief of Defence, upon his arrival at Iqaluit, Nunavut, during ***Operation Nanook*** *2009.*

In total, the increase in both expenditures and exercises on which the Arctic states have embarked suggests a renewed strategic significance that had receded following the end of the Cold War. No one is suggesting that the region is backtracking into the tensions of the Cold War but it seems somewhat naïve to believe that the period of cooperation of the 1990s will continue. Rather we are entering an era of uncertainty in which the Arctic states are calling for cooperation but are preparing for tension.

The Canadian Maritime Arctic Security Response

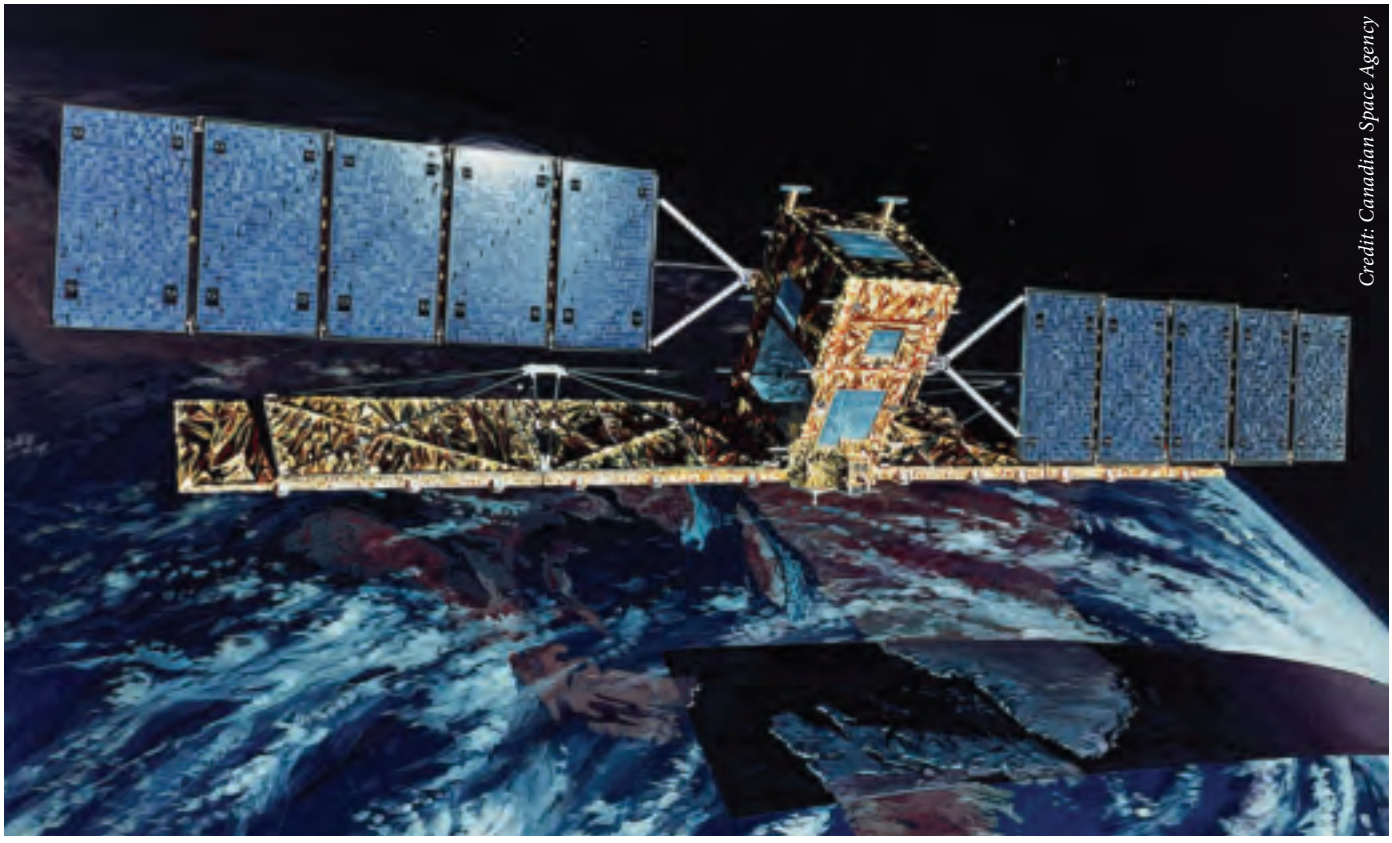
What is Canada doing to respond to this uncertain environment? The Canadian government has taken the challenge seriously. Even before coming to power, Stephen Harper campaigned in December 2005 on a policy to improve Canada's Arctic maritime enforcement and surveillance capabilities.[6] At the core of his promises lie several policy initiatives, including the development of an indigenous capability to monitor both the waters at the

surface and subsurface levels. Specifically this includes the continuation of the RADARSAT satellite systems, originally developed by the preceding Liberal governments, and the creation of the Northern Watch program to develop a Canadian underwater listening capability. But more importantly for maritime Arctic enforcement, the focus of his government has been the promise to build a new large icebreaker and a new class of Arctic-capable warships. The government has repeatedly stated its intention to build between six and eight Arctic Offshore Patrol Ships (AOPS) to operate in the Canadian north. While Harper had originally campaigned on a promise of three armed icebreakers, this has evolved to an icebreaker and a separate class of ice-capable naval vessels. Both initiatives have been slowed by the process of developing a shipbuilding policy and selecting a shipyard, but now that this has been done, the government has stated that it will soon make announcements about the building of the two sets of ships.

One of the most interesting elements of the decision to build the AOPS is that this is a decision that is more strongly supported by political decision-makers than naval officials. There are some indications that naval leaders do not enthusiastically endorse the decision to build a new naval Arctic capability. For example, former Chief of Maritime Staff Admiral Dean McFadden gave a speech in Washington in which he joked that the only need for the Canadian Navy in the Arctic region would be to rescue any invader.[7] Such comments at a high-level gathering of Americans scholars and officials suggests that he did not see a real need for a *naval* class of vessels to operate in the region. He seems to have made it clear in a 2010 article entitled "A Sailor's Perspective on the Arctic: Security on a Changing Frontier" that in his view the main need for the new vessels would be constabulary and nothing more.[8]

While the AOPS are going to be naval vessels they will not be warships in the traditional sense. For example, there was significant debate over whether or not to include a gun as part of the design. However most of the designs that have been released to the public have included a gun, and it appears that that debate has been resolved. What is not known is what other combat systems will be incorporated into the ships, or whether they will have the capability to add weapon systems if the need develops.

In a time of increasing financial difficulties, there can be little doubt that construction of a new class of vessel will have significant fiscal impact on the navy. This is particularly true of a navy that needs to replace much of its existing fleet, including replenishment vessels, destroyers and frigates. Furthermore there are serious questions regarding the navy's ability to maintain its submarine force and



An artist's depiction of the Canadian earth observation satellite RADARSAT-1.

Credit: Sgt Norm McLean, Canadian Forces Combat Camera

A Canadian Forces diver lays on the edge of the rigid-hull inflatable boat as it races towards an iceberg during ***Operation Nanook*** *2011.*

the long-term viability of its *Kingston*-class patrol vessels. Obviously construction costs of $6-8 billion (and probably higher) means that the navy will need to readjust its plans for future needs. Ultimately the naval budget is a fixed number. The addition of a new class of vessels will have an impact on the navy's ability to purchase other assets. The operations of these vessels will also be expensive and have an impact on the overall operating budget of the navy. How that will be resolved still remains to be seen, but it has undoubtedly caused some serious rethinking in the navy.

Beyond the costs of building these vessels, the requirements of operating in the Arctic will place significant demands on naval personnel once the ships are operational. There will be a requirement for new training. While Arctic water may soon lose its permanent ice cover, it will still freeze over in winter months meaning that the ships will need to operate in ice conditions. Some of this training may be provided by the CCG but the coast guard itself is already heavily tasked and it will have difficulty taking on new training responsibilities. Thus the navy will need to dedicate resources for the training of its crews to operate in this new environment. It is ironic that it is probably easier for the Canadian Navy to operate anywhere else in the world than in its own backyard.

It will be interesting to watch the impact that these vessels have on Canadian-American relations. No one is anticipating that these vessels will be used to enforce Canadian claims of sovereignty against American vessels, but it is possible to conceive of a scenario in which these vessels are utilized to arrest a foreign vessel that was violating Canadian law in Canadian Arctic waters. In that way the vessels could find themselves at the centre of a future sovereignty crisis.

Yet it is also possible to see the vessels as a means of reconciling the longstanding dispute between Canada and the United States regarding the Northwest Passage. The American opposition to the Canadian position is not really directed at Canada but rather at the precedent that it may create in other sensitive maritime locations such as the Strait of Hormuz. It is entirely possible that Washington could come to an understanding with Ottawa that as Canada is able to 'guard' the Northwest Passage, the United States would not attempt to undermine the Canadian international legal position.

Finally we must ask how useful the AOPS would be if the Arctic security environment were to deteriorate. It is impossible to provide an assessment without knowing the actual abilities of the ships, but they will be capable of carrying a helicopter so that will give them a significant

range of operation. The vessels will not be capable of high speeds and ice may handicap their operations. And, as noted, it is uncertain what type of weapons systems they will carry or have the potential to carry. But, nonetheless, they will allow the Canadian Navy to learn how to operate in the region and will give Canada a presence.

Conclusion

More important than the specific combat capability of the AOPS is that this addition to the Canadian fleet will force the Canadian Navy to think northward. Given the expected lifespan of these vessels, a new generation of Canadian naval officers will be exposed to Canada's third ocean. The Arctic will no longer be a region which the Canadian Navy visits for a couple of weeks in August. These vessels will therefore transform the Canadian Navy. It may lose some of its ability to travel and operate on the blue waters of the world, but it will gain the ability to maintain a presence in all of Canada's three oceans.

These vessels may indeed only be utilized for constabulary purposes, but that alone will be worth the cost. And if they are needed to take on the traditional roles of a warship, they will give the Canadian Navy experience in operating in the region. They will substantially improve the Canadian ability to know what is happening in the region and develop the ability of Canadian sailors to operate in Arctic waters. Given the magnitude of the transformation of the Arctic Ocean, it seems only prudent that Canada be willing to make changes to its maritime strategy.

Notes

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Credit: Cpl Rick Ayer, Formation Imaging Services Halifax

*HMCS **Summerside** sits off the coast of Cape Dyer, Nunavut, while participating in **Operation Nanook** 2011.*

Making a Difference in Arctic Naval Research: HMCS *Cedarwood*, 1948 to 1956

Isabel Campbell

Flying in the face of the atomic age and rising technology, HMCS *Cedarwood*, a 167-foot wooden sailing ship built at Lunenburg, Nova Scotia in 1941, seems an unlikely contributor to cutting edge research on the western Arctic ice shelf. She stood out like a sore thumb in the Royal Canadian Navy's (RCN) 1948 modern blue-water fleet of a light aircraft carrier, a training cruiser, four destroyers, two frigates and three minesweepers. Working closely with the US Navy (USN) and the Royal Navy (RN) during the parsimonious postwar years, the RCN concentrated upon developing a striking force concept, a naval aviation capability, and better anti-submarine warfare capabilities.[1] Nonetheless, under Lieutenant Commander J.E. Wolfenden, *Cedarwood* was the little ship that sailed where larger, better-armed, faster warships dared not go. During her busy career, she ventured into the Arctic ice pack, anchoring off small islands with dangerous uncharted sandbanks and rapidly changing tidal currents to test equipment, developing innovative logistical capabilities with the local Inuit population, and carrying American and Canadian scientists aboard what became a floating laboratory. Her story illustrates how a modest, well-placed resource played a key role in research in response to a new threat in Canada's north. At a time of severe shortages of trained personnel, she used few resources and her commanding officer developed a reputation for courage and ingenuity in the face of many climatic and geographical challenges.

Credit: DND

*HMCS **Cedarwood** underway.*

During the Second World War, the United States and Canada shared bathythermographic knowledge and technology, and applied sonar techniques to anti-submarine warfare. The National Research Council (NRC) in Ottawa collaborated with J.P. Tully, a Canadian oceanographer, in the relatively safe waters off the Pacific coast of Canada, developing anti-submarine tactics and equipment which at the time were still in their infancy. Tully developed excellent working relationships with the USN San Diego Sound School and produced oceanographic charts of Canadian Pacific coastal waters to assist with submarine detection and other sonar operations.

After the war, with a possible Soviet threat from the north, the government of Prime Minister Mackenzie King participated in joint northern defence activities designed to protect Canadian sovereignty. The 1946 Canada-United States Basic Security Plan placed emphasis on the defence of Canada's north and the RCN requested hydrographic and oceanographic surveys of the Arctic region to increase knowledge of these almost unknown waters. In the meantime, Tully continued his important research at the Pacific Oceanographic Group in Nanaimo, British Columbia, while the Americans established a new marine physics laboratory in San Diego and an Arctic Research Laboratory at Point Barrow, Alaska. Waldo Lyon, an American scientist, designed innovative equipment for American submarines to test in under-ice experiments. He and Tully collaborated closely in Pacific research and they pushed hard for a joint American-Canadian program in the western Arctic.[2]

Few high-ranking American naval officers accepted Lyon's belief that submarines could operate safely under the polar ice cap and consequently he received minimal resources to carry out his research. Nonetheless, work with submarines in the Arctic continued, and during the summer of 1948, USS *Carp*, a USN submarine used by the Naval Electronics Laboratory (NEL) in San Diego, sailed to the Arctic ice pack and began vertical dives and ascents to test the use of polynyas (small ice-free lakes) for surfacing. At the end of this expedition, Lyon published a report recommending modifications in submarine design for polar work.[3] His report made little impact at the time because the Berlin airlift kept Washington policy-makers focused upon European priorities. Few USN resources

Ice on the deck of USS ***Carp*** *during an Arctic expedition in 1948.*

were available for the western Arctic, but NEL provided its single submarine to begin work.

The Canadians were ready to help. In mid-1948, the Pacific Oceanographic Group requested that *Cedarwood* be converted to an oceanographic survey vessel with the addition of more detection equipment than was possible to place in the smaller Canadian Naval Auxiliary Vessel (CNAV) *Ehkoli*. *Cedarwood* had served the Royal Canadian Army Service Corp under the name *General Schmidlin* in the harbours of Canada's East Coast. Though she had limited ocean-going capabilities, she was a perfect choice for British Columbia's inside passage and the Naval Board approved the request.[4] *Cedarwood* was commissioned on 22 September 1948.

Her commander had served in British Columbia coastal tugs during the 1920s and 1930s and had an instinctive feel for navigating challenging coastal waters. Wolfenden joined the RCN as a wartime reservist on 29 September 1941 but, at the end of the war, because of his relatively advanced age of 40, he was rejected from the RCN's permanent force. Instead, he served in the RCN (R), commanding *Cedarwood* for a number of years even after he became a permanent officer in 1951. Despite his excellent seamanship, his knowledge of Pacific coastal waters and his resourcefulness, he lacked the courses and training of officers junior to him in age and experience and his career was thus limited. Although he diligently plugged away in the RCN permanent force until his retirement in 1959, his best years were undoubtedly those spent aboard *Cedarwood* when all his skills as a captain and a sailor were utilized and appreciated by those around him, especially the scientists who praised his willingness to accommodate their needs.

American-Canadian study of the problem of detecting submarines in the Nodales Channel, off the coast of BC, began in late 1948. On 8 November 1948, *Cedarwood* embarked nine scientists and sailed towards the channel in company with the NEL submarine, USS *Baya*, USS *Epce* (R) 857 and HMCS *Rockcliffe*. She began intense work, handling buoys and targets, acting as guard ship for the American warships, and providing a headquarters for the scientists. *Ehkoli* joined on 2 December.[5] The scientists and ships remained at sea for about six weeks collecting data which they then analysed ashore. The Canadian scientists contributed to the theory of underwater sound, to the methodology of sonar measurements and to physical oceanography.[6] Their work laid the basis for more oceanographic research and the voyage provided training for the dangerous work at the edge of the ice field. *Cedarwood* had proved her worth and, by 1949, the Pacific Ocean Group wanted her to support a joint American-Canadian investigation of submarine and anti-submarine capabilities in Arctic waters. They hoped to provide early warning of attack and also to investigate the behaviour of the sound beam to improve submarine detection in this area. The ambitious 1949 program included exploration of underwater sound, marine biology, the geology of the ocean bottom, underwater canyons, as well as measurement of currents and temperatures. *Cedarwood* helped to lay the groundwork carried further by the Canadian

Equipment and personnel going ashore at Wales on the western tip of the Seward Peninsula.

icebreaker, *Labrador* which was commissioned in 1954, and also later by American icebreakers and submarines.

In 1949, *Cedarwood*, *Baya* and *Epce* undertook long cruises in the western Arctic. Twenty-seven American and Canadian scientists accompanied them. *Baya* departed San Diego on 27 June and arrived in Esquimalt on 9 July. *Cedarwood* had left Esquimalt on 29 June, proceeding north. On 9 July, she entered the Bering Sea and began 24-hour a day observations, surveying the ocean bottom and taking bathythermographic observations every 20 miles. She also measured currents at various depths throughout the voyage. This demanding schedule for the crew and scientists continued unbroken until 30 August, although she returned to Adak Naval Operating Base in Alaska and joined the American ships on 21 July. The three ships proceeded to the Bering Sea and began operations near the edge of the ice pack with *Baya* acting as an icebreaker.[7] *Cedarwood* left the two other ships and established a shore station at Wales, on the western tip of the Seward Peninsula, 179 km northwest of Nome, Alaska, and laid several submarine cables out into the Bering Straits.

The beach at Wales was very shallow with sandbars and surf. *Cedarwood* had picked up 12 Inuits and a skinboat at Teller, which is on a spit of land on the Seward Peninsula about 116 km northwest of Nome, for passage to Wales, and they were able to transport supplies and equipment to shore on the skinboat. Otherwise this would have been an impossible task. This was a lesson in the importance of utilizing both creativity and the skills of local inhabitants.

Shortly after this, *Cedarwood* rendezvoused with USS *George Clymer*, the senior ship of the USN Point Barrow Expedition, in the Bering Strait and picked up a landing craft loaded with more equipment. Unfortunately, the landing craft was lost during an attempt to make the challenging beach at Wales, although the crew salvaged and then used nearly all the equipment. The Wales shore station was eventually abandoned due to strong local water currents of up to five knots – the equipment only worked with currents up to 1 knot. Nonetheless, the expedition produced a provisional surface current chart and provided better knowledge of local shore conditions. *Cedarwood* rendezvoused again with *Baya* on 6 August, and landed an injured crewman at Nome for medical attention before sailing north, crossing the Arctic Circle on 9 August 1949.

Cedarwood proceeded along the pack ice, while the scientists continued frequent observations and the crew spotted walrus and polar bears. When fuel and water got low, she returned to Teller and another rendezvous with *Baya* before reaching Wales to dismantle the shore station. Then, she sailed north to Tigara on Point Hope, on the northeast end of the Lisburne Peninsula projecting into the Chukchi Sea, where the ship's company traded with local Inuits. *Cedarwood* proceeded as far north as latitude 73 15º N (longitude approximately 167º W) before low fuel and bad weather forced a return to Kodiak, Alaska. She had traveled further north in western Arctic waters than any other RCN warship to date. Finally she visited Sitka, Alaska, where Lyon joined *Cedarwood* for the voyage back to Esquimalt. By the time *Cedarwood* returned to Esquimalt, she had travelled over 16,000 kilometres.

Cedarwood carried three to five Canadian scientists and three to six American scientists during the voyage. They studied underwater sound transmission at different frequencies in shallow and deep water, ambient noise,

*A map showing the area of HMCS **Cedarwood**'s expedition. **Cedarwood** traveled further north in western Arctic waters than any other RCN warship to date. By the time **Cedarwood** returned to Esquimalt, she had traveled over 16,000 kilometres.*

temperature and salinity, bottom topography, tidal currents and circulation systems, and sea floor fauna. After collecting so much information, the laboratories spent two years analysing it.

This basic scientific information answered some of the requirements of the Canada-United States Basic Security Plan and it provided a basis for further work during the 1950s, in particular the information was important for undersea warfare in the Pacific sub-Arctic area. Based on his experiences on this northern expedition, *Baya*'s commanding officer noted that the edge of the ice pack was an excellent hiding area for submarines, providing cover from air and surface search and making sonar ranging very unreliable. He also discovered that *Baya* was an efficient icebreaker, although some alterations would make her more effective.

Relationships and personalities proved important – the Arctic environment required strong nerves and a willingness to take risks. Not everyone performed well in it. Notably, important relationships were formed between Canadian and American sailors and scientists. The Director of the NEL appreciated Canadian involvement and he wrote to the Canadian Chief of Naval Staff through the American Chief of Naval Operations to thank Canadian personnel, especially Tully and Wolfenden. Wolfenden had located emergency fuel supplies at Nome, chose excellent rendezvous points for the ships and demonstrated resourcefulness in difficult situations.[8] In contrast, Lyon later complained bitterly about Commander John R. Schwartz of the American icebreaker *Burton Island*. Schwartz had never served on anything smaller than a battleship before he took command of *Burton Island* and he was reluctant to venture into the ice pack, frustrating Lyon's scientific ambitions time and again.[9] While the wooden *Cedarwood* was not a reinforced icebreaker, Wolfenden had nerves of steel and earned respect for his willingness to carry out even dangerous missions.

Cedarwood continued serving as a floating laboratory for another six years on a variety of oceanographic tasks along the coast of BC and in the western Arctic. On 27 July 1950, she sailed from Esquimalt carrying four oceanographers from the Pacific Group at Nanaimo. Unfortunately, loran, radar and HF/DF broke down on 3 August and overcast skies made navigation very difficult – but the ship still managed to do work in deep water and made her way safely back. After repairs *Cedarwood* proceeded to Vancouver and then Campbell River on new oceanographic equipment trials. On 19 September, a force 7 gale struck, moderating for two days before increasing to force 10 with high seas. By the evening of 22 September, faced with broken log booms, *Cedarwood* waited to cross the

Credit: DND

The survey vessel HMCS ***Ehkoli****.*

Hecate Straits in daylight and was severely tossed, rolling up to 50 degrees in two seconds measured by a stop watch. While Wolfenden considered his ship very seaworthy, she had been badly damaged in the storm. On 30 September, the oceanographic equipment was transferred to SS *William J. Stewart*, a government survey ship, while *Cedarwood* underwent repairs in Esquimalt.[10]

Repairs took a month and, on 30 October, *Cedarwood* sailed for the Nodales Channel area with five Pacific Naval Laboratory personnel and research equipment to study anti-submarine research operations. She laid out a target and buoy line in 130 fathoms of water and later lowered a harbour defence ASDIC unit over the side first with the ship stationary and then with the ship sailing in order to study results under different conditions. On 1 November, *Ehkoli* joined her to assist in the operations and to measure the transmissions made from the ASDIC unit on *Cedarwood*. Having a second vessel greatly enhanced the value of the research. *Cedarwood* also transmitted to triplane targets and recorded the echoes with photographic and chemical recorders. *Cedarwood* returned to Esquimalt on 15 November and then went back to sea on 27 November with four oceanographers and equipment. The ship gradually worked her way to the northern end of the Strait of Georgia and she investigated the appearance of solidified oil found near the shore in Bute Inlet. She returned to Equimalt on 5 December.

Wolfenden continued to command *Cedarwood* in 1951 and she enjoyed a more stable crew than most RCN warships as the navy combed ships for personnel to provide three destroyers in Korean waters. On 8 January, *Cedarwood* embarked four oceanographers and sailed from Esquimalt to look for appropriate water conditions for acoustic operations in the Strait of Georgia. Finding only poor conditions, she made her way to Vancouver on 12 January and embarked four University of British Columbia (UBC) oceanography students and two professors for a weekend training cruise. The hands-on training

Credit: DND

HMCS ***Cedarwood*** *as she appeared after decommissioning and conversion to the paddle steamer* ***Commodore****.*

aboard *Cedarwood* highlighted the link between defence requirements and the academic program at UBC. Now Canada could produce its own oceanographers, contributing to world class research and better information on coastal waters. Importantly, the capabilities helped Canadians gain access to cutting edge American knowledge as well. As a result, the RCN began to develop the body of expertise that would be required for northern defence even before HMCS *Labrador* came into service in 1954.

While the threat to the West Coast was perceived to be much lower than for the East Coast, *Cedarwood* assisted in developing precise oceanographic data for the BC coastline to improve submarine detection, while also supporting fisheries and scientific research. In January and February 1951, *Ehkoli* joined her to assist in acoustic operations with Pacific Naval Laboratory personnel. Due to bad weather, the two ships did not leave Vancouver until 17 January. In the few days before more bad weather forced them back to shore, the two ships did testing on harbour defence ASDIC, acoustics at various depths and under various conditions. And when they returned to the area in February, they continued to explore these topics. With *Ehkoli* secured to an anchor buoy *Cedarwood* steamed to the end of 500 yard spacer line so the scientists could observe the characteristics of a sound beam passing through layers of water at different depths. They also undertook a full synoptic oceanographic survey of the Strait of Georgia and a three-day survey of Bute Inlet.

For the next six years, *Cedarwood*, her crew and scientists continued long hours of painstaking scientific work in waters off BC, frequently maintaining stations under stormy conditions. Canadian and American scientists aboard *Cedarwood* also made an extensive expedition and survey of the Bering and Chukchi Seas during these years.[11] *Cedarwood*'s service was marked by periodic hair-raising episodes of bad weather, heavy seas and, unfortunately, one grounding close to Major Inlet in the Strait of Georgia on 29 March 1952. By this time, Wolfenden was part of the permanent force. He and his Officer of the Watch, who had been alone on deck during the grounding, incurred the severe displeasure of the Naval Board but both escaped more severe courts martial. Wolfenden commanded *Cedarwood* for many more voyages but she would be his only command. He never gained the background and training required for promotion. Still his long service in the reserves undoubtedly helped him perform well as staff officer training reserves in Esquimalt – one of his shore postings. By the time the RCN paid off *Cedarwood* on 9 July 1958, she was under the command of Lieutenant-Commander E.S. Cassels who frankly admitted her limitations and the difficulties of handling a top-heavy ship loaded with specialized equipment in rough waters.

She had served the RCN not quite 10 years, but she had made a difference. Wolfenden had too. Neither ship nor captain is well known to Canadians, but both made significant contributions under very difficult circumstances. Together with the crew of 23 and the scientists they took aboard, they contributed to oceanographic and naval operational research in the north Pacific and the western Arctic at minimal cost to Canada. In doing so, they earned their spots in Canadian naval history.

Notes

1. Much of the original research for this project was undertaken while working on volume three of the official history of the Royal Canadian Navy. Thanks to Michael J. Whitby and Jason Delaney for their comments on an early draft of this paper.
2. Gary Weir, *An Ocean in Common, American Naval Officers, Scientists, and the Ocean Environment* (Texas: Texas A&M University Press, 2001), pp. 262-263. William M. Leary, *Under Ice. Waldo Lyon and the Development of the Arctic Submarine* (Texas: Texas A&M University Press, 1999).
3. Leary, *Under Ice*, pp. 25-29.
4. Naval Board Minutes, 27 May 1948, DHH, 81/520/8000.
5. Lieutenant Commander J.E. Wolfenden to FOPC, "Reports of Proceedings, *Cedarwood*, November 1948," in LAC, RG 24, Volume 11785, File PCC 1926-315.
6. R. Bennett, Director, Naval Electronics Laboratory (NEL) to Chief Naval Service, Department of Defence, Ottawa, stamped 13 December 1949, in LAC, RG 24, Volume 8155, File, NSS 1660-46.
7. Lieutenant Commander J.E. Wolfenden, "Report of Proceedings of the Joint Canadian-United States Aleutian Scientific Expedition to the Bering Sea and Arctic Ocean," 26 September 1949, in LAC, RG 24, Volume 11785, File 1926-316/1.
8. John D. Mason, Commanding Officer, *Baya,* to FOPC etc., 12 September 1949, in LAC, RG 24, Volume 8155, File NSS 1660-46; Bennett, Director NEL to Chief Naval Service, 9 September 1949, in LAC, RG 24, Volume 11785, File 1926-316/10.
9. Leary, *Under Ice*, pp. 42-44.
10. Wolfenden, "Report of Proceedings, September 1950," in LAC, Volume 11785, File 1926-316/1.
11. John B. Tully, Pacific Oceanographic Group, "Part 2, Oceanography on Canada's Pacific Coast," Nanaimo, BC CISTI, Rare Books Room, *A Review of Oceanography*, 9 July 1954, Volume 1.

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A Rock Group: Ships Fated for Failure, Stranded by a System

Angus McDonald

In the past six months, three commercial ships have stranded on reefs – one on the rocky coast of Nova Scotia, one on a reef near the port of Tauranga in New Zealand and one off the island of Giglio on Italy's west coast. The latter two, the container ship *Rena* and the cruise ship *Costa Concordia*, became known globally but the first one, *Miner*, a bulk cargo carrier headed for a scrap-yard in Turkey, is less well known.

Well known or not, all three members of this 'rock group' provide us with some important lessons about the current state of the system in which commercial ships operate. The system referred to here is a generic description of commercial shipping and alludes to how it operates today. Commercial shipping is about service and money-making – or money-losing, depending on global market conditions. About 90% of world trade is transported by commercial shipping which is vital to the global economy.

The System

The crews who serve on commercial ships are generally regarded as costs rather than assets. Crews are cut to a minimum and seafarers are hired on a casual or semi-casual basis from countries with low wage rates which allows ship owners and ship managers to use crew cost as a competitive factor. Masters are often under pressure from owners or charterers to meet voyage deadlines.

These are not new phenomena – 100 years ago, the master of *Titanic* yielded to pressure from the ship's owner who wanted a record Atlantic crossing. Thus, speed was not reduced in an area where the master knew that fog and icebergs could be expected. Even earlier, the *Merchant Shipping Act* of 1876 passed by the British Parliament put an end to owners overloading ships by mandating load-lines, after a long and bitter struggle. A few years prior to this, in response to lobbying from insurance interests, the British government directed the Board of Trade to have all masters of British ships in international trade examined for certificates of competency.

In the 1980s, over 80 years after the *Titanic* disaster, the International Maritime Organization (IMO) agreed to develop the International Safety Management Code in response to shipping disasters in which company management practices were implicated. IMO made the code's safety management practices mandatory, as part of the Safety of Life at Sea (SOLAS) Convention of 1974, which owed its origins to the first SOLAS Convention in 1914 held as a result of the *Titanic* disaster. So, cutting corners

Credit: Roberto Vongher

Lifeboats moored in port near the grounded ***Costa Concordia****.*


Credit: Harland & Wolff

*RMS **Titanic** departs Belfast for sea trials in 1912. The **Titanic** disaster set into motion a long chain of shipping safety conventions.*

to reduce costs and putting pressure on masters to meet deadlines is not new but it is still important to examine these factors in the current context.

A second characteristic of the modern system is the tendency to criminalize seafarers. The master is in command of a multi-million dollar vessel with a multi-million dollar cargo, which is expected to arrive at designated ports 'just in time' as importers do not like to hold inventory. When one considers the responsibility and the value under his command, the master could perhaps be compared with a Chief Executive Officer (CEO) of a major commercial business ashore. However, the master is less fortunate than the CEO. The master is fully accountable, so in an accident, a stranding or an oil spill despoiling a coast or if drugs are found in the cargo or even in a metal container adhering to the bottom of the ship, the master may be charged as a criminal in a foreign justice system and incarcerated without formal charge or even legal representation. Unlike the company CEO, the master does not have a compensation package agreed by contract, but rather is paid a modest salary for the period of employment and is off pay if jailed.

Canada, like many states, has serious laws concerning ship-source oil pollution and a master may be held personally responsible if there is even an accidental oil spill in which he may have no personal culpability. The justice system takes the view that since the master is in charge of the vessel and has authority over all on board he should ensure that no violations occur by anyone on board. Even if we brought back the lash to keep crew members in order I doubt if this could be guaranteed.

A third characteristic of the system is management's attitude to training. States like Canada, United States and major European states have their own nautical and marine engineering training facilities but certification is no longer a national issue, rather it complies with the IMO's Convention on Standards of Training, Certification and Watch-keeping (STCW). Merchant mariners' qualifications have always been granted by governments. Nowadays, states adopt the rules and regulations embodied in international treaties which they ratify and blend into national legislation. The important thing to note here is that the 'system' seeks a minimum standard of training because of cost. Today, one may suspect that a lack of good training and experience in some watch-keeping officers is a factor in some commercial ship casualties, in spite of electronic aids or perhaps because of undue reliance on them rather than on good seamanship.

First on the Rocks: Miner

The first of the rock group to hit the rocks was the bulk carrier *Miner* which was built in the 1960s. After a long life carrying bulk cargoes of grain, iron ore, coal and salt through the Great Lakes system, the ship was sold by its Canadian owner to a foreign buyer who planned to have the old-timer towed to be recycled in Turkey. Recycling is the new term for scrapping a ship and there are now international rules which impose considerable costs on owners who wish to dispose of a ship. Such costs are anathema to ship owners. *Canadian Miner* was sold to a foreign company and renamed *Miner*.

The new owner's ocean-going tug, *Hellas*, picked up its tow in Montreal. When the tug arrived in Montreal it was inspected by Transport Canada's ship inspectors under the International Port State Control regime and they found many defects and deficiencies. The tug which was almost


Credit: Canadian Coast Guard

*MV **Miner** grounded on Scaterie Island, Cape Breton, Nova Scotia.*

Credit: New Zealand Defence Force

*MV **Rena** loaded with containers sits grounded on Astrolabe reef near New Zealand.*

as old as its tow, was registered in a small island country known to be lax on enforcing IMO safety rules. The tug was detained until remedial action was taken, then, was free to proceed. Transport Canada has no authority to insist on towage plan approval of foreign ships, so the tow down the St. Lawrence proceeded without a proper vetting which would have included approval of the route from the river out into the ocean and consideration of weather. The towed vessel was like a large empty barge 230 metres long and had no crew on board so when the tow-line broke, trying to reconnect the tow in rough seas was hopeless.

The old ship which, under Canadian rules, was considered structurally unfit to proceed further seaward than Anticosti Island, found her fate at about 0220 on 20 September 2011 on a rocky reef close to Scatarie Island three miles from Cape Breton's northeast coast. In days of sail, many vessels had been wrecked on this island which is located at a turning point into or out of the St. Lawrence Gulf. The big empty ship was as helpless as a sailing ship on a lee shore. On the night *Miner* hit the reef, the wind in the area was northerly 40-50 km/h, the sea rough and swell moderate.

In my view, the towed vessel hit the reef and was stranded due to a lack of good and prudent seamanship on the part of the tug's master. Before entering the Cabot Strait he should have waited for a good 'weather window' and followed a course well to the north of Cape Breton's rocky shore which on the fateful night was down wind – a lee shore. Perhaps he was under pressure from business interests of the Greek owner and the Turkish buyer, but that is no excuse. As well, there was no evidence that there was an auxiliary tow-line set up on the ship in such a way that the tug could have hooked on to it without crew from the tug having to board the ship. The ship's fate was sealed due to a sub-standard tug and a lack of thorough preparation for the ocean tow.

The Second Rock Star: Rena *Wrecked on Reef*

The container ship *Rena* was on a passage from the port of Napier on the east coast of New Zealand's North Island to the port of Tauranga, New Zealand's largest export port. On 5 October 2011 at 0214 – in good weather on a clear night – *Rena* crashed on to Astrolabe reef at her full speed of 17 knots. The reef, clearly charted, is located about 12 miles from Tauranga port entrance. About two hours prior, Tauranga Harbour Control called the ship and had given the master an arrival deadline of 0300, to catch the tide and avoid delay. The ship had already been delayed by 13 hours at Napier and certainly there was pressure to avoid further delay. Container ships operate on a tight scheduled service but they are also at the mercy of port interests, tides and weather.

Rena, built 1990, was 235 metres in length, 37,209 gross tons and had a container capacity of 3,351 20-foot equivalent units (teus). In earlier days, for another owner she had called in Halifax as *Zim America*. Merchant ships change ownership and registry for commercial or financial reasons. At the time of the grounding, the ship was owned by a shipping company registered in Liberia, a subsidiary of a Greek company registered in Marshall Islands and chartered to a major Swiss shipping company. The ship was registered with the Liberian International Ship and Corporate Registry, in Virginia, USA, and crewed by Filipinos. As you see, tracing a clear line of responsibility can be complicated.

About three months before the stranding, the ship was inspected in Fremantle, Australia, by government ship inspectors acting under the Port State Control regime. They detained the ship after finding defects and deficiencies. The CEO of the Liberian Registry flew to Fremantle and persuaded the Australian Maritime Safety Agency to release the ship.

Credit: Maritime New Zealand

*The salvage barge **Smit Borneo** offloads cargo containers from MV **Rena**.*

After the grounding, Maritime New Zealand, the country's marine administration, instructed *Rena*'s owners to call in a salvor. The Dutch company, Svitzer, was appointed and its priority was to remove about 2,000 tons of fuel from the ship. Some oil had reached shore, spoiling beaches and harming wildlife. The NZ Marine Pollution Response Service was mobilized to perform shoreline clean-up. Salvors also went to work removing the cargo of containers and brought in a barge with a crane. The salved containers were taken into Tauranga but many containers fell overboard, some sank, some were washed out to sea or drifted on shore. Incidentally, a New Zealand winery named Astrolabe had shipped 4,000 cases of Sauvignon Blanc on *Rena*. The wine valued at $800,000 was destined for Ireland. There was weeping in Dublin, I suspect, when they contemplated the loss.

The day after *Rena* hit the reef, officials of the NZ Transport Accident Investigation Commission began collecting evidence, logbooks, charts, the computer and portable data module from the ship's voyage data recorder. They interviewed the master and the watch-keepers. On 11 October, the crew members were sent to Auckland where all, except the master and officer-of-the-watch, the second mate, were released for repatriation to the Philippines. The master and the second mate were charged under the *Maritime Transport Act* with "operating a vessel in a manner causing unnecessary danger or risk" and later because of pollution of the coast they were further charged with "discharging harmful substances from the ship." Both charges carry heavy fines and possible jail sentences. The authorities remanded them on bail in Auckland.

On 2 January 2012, after nearly three months of pounding by ocean swell and several storms, *Rena* broke in two. A week later the aft part of the ship slipped beneath the waves, leaving about 80 metres of ship, still loaded with containers, accessible but the hull embedded on the reef. Salvors continued their dangerous work.

Also that month the European Union (EU) reportedly threatened to ban Filipino crews from ships registered in EU countries and called upon the government of the Philippines to review its seafarer training and certification practices. The government replied that it would audit seafarer training facilities and would de-register those that did not meet IMO standards. It should be noted that about 30% of seafarers on international shipping are Filipinos. Significant national revenue is derived from remittances sent home by nationals working overseas.

The grounding of *Rena* is a glaring example of bad seamanship through neglect of careful navigation. The ship was being steered by autopilot for most of the passage from Napier. The autopilot operated off the gyro compass. The ship's global positioning system recorded her position in relation to the ground, giving the ground track. It was found by the investigators that there was a difference of 2 degrees to port between the course steered and ground track. This could have been caused by set of current and/or gyro error. It is known that in the Bay of Plenty, there is

Rescuers reach ***Costa Concordia*** *by helicopter to begin the search of the interior.*

a southerly set. The master, anxious about time of arrival at Tauranga, disregarded the passage plan (which had the ship pass to the north of the reef), and due diligence. He made small course alterations to the south of the safe track. Nine minutes before the ship hit the reef, those on the bridge noted on radar, an intermittent echo, 2.6 miles ahead of *Rena*. They did not plot the ship's position or consider altering course away from whatever danger set off the warning and which would have prevented this loss.

The Final Rock Star: Costa Concordia *Catastrophe*

In the rock group *Costa Concordia* was the biggest and brightest star of all and its fate was the most catastrophic – with loss of life. On Friday the 13th, January 2012, the 290-metre luxury floating hotel carrying 3,206 guests and 1,023 staff sailed from the port of Civitavecchia and headed up the Tuscan coast on a cruise. Captain Francesco Schettino, commanding a $450 million dollar ship, decided to pass close to the island, Isola Giglio, and give a salute to those on shore with a blast on the ship's horn, a risk which had been tolerated but not officially condoned by the owners, Costa Crociere SpA of Genoa. The ship was proceeding at 16 knots when it struck a known rocky reef which ripped open her hull for 50 metres, in way of the engine room, causing rapid flooding and an electrical blackout. The main engine stopped but the big ship carried considerable momentum. Port helm was ordered and the ship turned towards Giglio Island and stranded on a rocky ledge, thus a possible sinking in deep water was prevented.

There could be no order to abandon ship until the ship was stopped and stranded. The guests and staff, helped by emergency lighting, struggled to the deck, most with lifejackets. There had been no lifeboat drill, as customary, prior to the ship leaving its first port. Lifeboats on the starboard side were launched quickly before the ship heeled right over but the lifeboats and rafts on the port side could not be launched and people had to climb down rope ladders, then jump into the sea and be rescued by boats from shore. Some dived overboard on the starboard side and swam to the rocky shore. No signal of distress had been made by the ship's command which delayed the coast guard with its helicopters and vessels from coming to the rescue.

To the amazement of those struggling to survive, they saw Captain Schettino, no longer in his uniform but in 'civvies' and huddled under a blanket, in a lifeboat. Police arrested him as he had not only violated a law of the sea, but also Italian law by abandoning his ship in danger. He was charged in a magistrate's court on Isola Giglio and

Credit: Roberto Vongher

Passengers from ***Costa Concordia*** *wait to board the next ferry from Giglio Island to mainland Italy.*

admitted that although he had brought his ship close to shore, he was sure there was adequate depth. When he saw foam breaking on a reef, he altered course to starboard, resulting in the ship's hull, abaft amidships, moving at speed, striking the rock. While the captain admitted he had made "a judgement error," the Chief Prosecutor of Tuscany, Signor Bengiamino Deiddo, overseeing the inquiry into the shipwreck, noted that "attention is generally concentrated on the captain, who in this case, showed himself to be tragically inadequate," but urged investigators to look beyond the behaviour of the captain to the role in this disaster of the owners, Costa Cruises. Did they have a code of conduct for senior officers which would avoid a tendency to recklessness? This tragedy in the centennial year of *Titanic* cost 30 known deaths, two persons are still missing, huge amounts of money are involved – and an industry, a 'system,' suspect.

Conclusions

These three ships met their fate in different areas of the world and while under the care of ships' masters of different nationalities. But, as pointed out by the Italian Chief Prosecutor in respect of the *Costa Concordia*, failures in seamanship and navigation may be a failure in an international system of standards in training and certification of seafarers, and in an industry's lack of diligence in the appointment of their ships' senior officers. Some culpability is also due to the IMO for agreeing to the construction of ever bigger cruise ships for massive numbers of guests in the care of too few well-trained seafarers. The International Search and Rescue services, also an IMO interest, would be inadequate to cope with such numbers of innocent victims in a disaster at sea, far from land. It seems that safety at sea in 2012 is still an issue needing work as it was in 1912.

Captain Angus McDonald is past National Master of The Company of Master Mariners of Canada.

Penguins, Oil and Frigates Viewing Falkland Island Politics from the Inside

Kirk Binns

A Maritime Vignette

One day, a Super Puma helicopter was performing a routine passenger sortie to a semi-submersible drill platform stationed about 130 nautical miles from shore. One-third of the way into the outbound leg, the crew received instructions to return to base as the platform was unable to accept the helicopter at the time. Later, the crew was informed that the base's second Super Puma, normally on a dedicated search and rescue posture for the drill rig, was being reconfigured for additional passenger space. As night approached, the two crews were informed that the platform had lost all power and thus was unable to ballast the legs properly to retain stability. The rig was listing badly and the majority of its 65-member crew was ordered into the platform's two lifeboats. As the list increased towards double digits, the Puma crews were told to plan as many sorties as required to evacuate the rig.

A skeleton crew of engineers remained on the platform urgently trying to restore power to the ballasting pumps. In four night sorties, the two helicopters evacuated the crew who spent the night in a hotel waiting to hear the news of their place of work. The platform by then had been stabilized to 3.5 degrees of roll and was illuminated by emergency lights. By the next morning, the platform was fully stabilized and plans were set in motion to re-man the platform.

Where did this happen? Was it in the North Sea, the Gulf of Mexico, off the coast of Newfoundland or the other places we hear about? No, this occurred 150 miles north of Port Stanley, Falkland Islands. Geological seismic surveys were conducted around the islands in the late 1970s and then again in the early 1990s (the conflict of 1982 put somewhat of a damper on exploration). The results showed a potential for substantial well drilling and oil production. Although natural gas may also be present below the surrounding seabed, the commercial emphasis has been on oil. The development of offshore oil and gas fields has always garnered the attention of the host state's navy but, in this case, the Royal Navy is stretched rather thinly. There is always one major warship on station around the Falkland Islands, but the waterspace is vast. As of this writing, a Type 23 frigate is about to be replaced by a Type 45 air defence destroyer

Credit: Author

The semi-submersible rig Ocean Guardian located 150 miles north of Port Stanley, Falkland Islands, lists badly after it experiences a power outage.

Combine the oil with an ample, sustainable fishing industry, a military prince posted to the islands, a 30 year anniversary of a lopsided, but costly war and a worldwide economic recession that fuels nationalist feelings and you have all the ingredients of a fascinating political opera. Add some bumbling comments from a President, a Prime Minister and a Hollywood actor and the story becomes worthy of not only *The Economist*, but *People* magazine as well. The ghosts of a conflict over two centuries old are released once again.

Some Background of the Falkland Islands

It is hard to imagine if you are standing on the waterfront of Stanley that the Falkland Islands would be such a focus of frustration and conflict between the United Kingdom and Argentina, the third largest state in South America by Gross Domestic Product (GDP). Split between the two main islands, East and West, the Falklands cover about 4,600 square miles. The islands have no indigenous trees and with the extinction a local type of fox, there are no indigenous land mammals. But there is wind, and lots of it. Conspicuous consumption is virtually unheard of.

Almost everyone drives a Land Rover because you need it to traverse the peat, rocks and muddy trails that cover the islands. Even the road link between Stanley and RAF Station Mount Pleasant (MPA) is only partially paved. The economy here is based largely on exports, wool and fish, to be exact. Sheep shearing is somewhat of a sport and many farmers supply both wool and mutton for sales overseas. The rich, exotic sealife off the islands, including penguins, seals, sea lions and porpoises, has drawn a rapidly expanding cruise ship tourist business. The offshore and inlet fishing industry products, including rock cod, toothfish, other types of finfish and squid, have enriched the islands' economy.

While sitting in the rustic Victory Bar in Stanley, drinking a Spitfire Ale, it is not hard to imagine you are in a pub in the UK. There are dartboards and Manchester United banners covering the walls. A signed squadron print of a Tornado fighter-bomber hangs near the fireplace, which is also festooned with regimental cap badges. The accents are quite British and so are the faces. The Falklands, a British Overseas Territory, are not a part of the United Kingdom, but depend on it for defence and some foreign policy administration. They are a sovereign people by choice and have their own tax structure, legislative assembly and currency. The 2006 census reports a population of roughly 3,000, just under 50% of whom were islanders by birth (with British ancestry) and 20% of whom were born in the UK. Those born on the mid-Atlantic island of St Helena are the most visible minority followed by Chileans. Of note, only 29 persons of Argentine birth live on the islands. And, as was explained to me at the Globe Tavern in Stanley, "they keep a pretty low profile." RAF Station MPA houses some 1,700 soldiers, sailors and airmen who were not part of the census.

The early history of the discovery and subsequent population of the islands is typical of any other remote corner of the world. There is evidence that the islands were mapped by Spanish ships in the 1550s and that Sir Francis Drake confirmed this by 1580. By 1690, John Strong, captain of HMS *Welfare*, landed on the islands and named them after Viscount Falkland. The 1700s brought various claims upon the Falklands, including the establishment of a French settlement in Berkeley Sound, East Falkland, populated with Acadians who had been expelled from Nova Scotia. After a colourful history hosting whalers, sealers and various Spanish, French, British, American and Argentinean representatives, in 1833, the British formed full governance over the islands and with the exception of the two months in 1982, have done so ever since.

The Falklands were the stage for major sea battles in both World Wars. The Battle of the Falkland Islands in 1914 that led to the destruction of a German naval squadron led by Vice-Admiral Maximilian Von Spee is well accounted and there are memorials on the islands commemorating the battle. At the beginning of the Second World War, Stanley was the aid station for HMS *Exeter* following the Battle of the River Plate in 1939 – the first major naval battle of the war.

It is interesting that Argentinean aggression and/or political coercion (other than one request for sovereignty talks in 1884) were absent from history until the 1960s. In a stunt to focus attention on the upcoming 1964 United Nations meeting on decolonization, an Argentinean man flew a light aircraft into Stanley, planted an Argentine flag and served a befuddled resident with a declaration of Argentinean claim over the Falkland Islands. More seriously in 1966, an aircraft was hijacked from Argentina and taken to Stanley. The hijackers (Los Condors) took three islanders prisoner and after a day or two, surrendered to local authorities when they realized Argentinean occupation of the islands was unlikely based on their efforts. Upon repatriation, a plaque was mounted in Buenos Aries in their honour. Also in 1966, 12 Argentinean marines were landed via submarine in the islands to reconnoiter landing zones for military forces of the future. The squad was led by Juan Jose Lombardo, Argentinean Chief of Naval Operations during the war in 1982.

At this time, all was not rosy in the British Empire. In the 1960s and 1970s most of the Empire was in the process

Credit: Wikimedia Commons

This photo gives an aerial view of Port Stanley.


Credit: Imperial War Museum

Argentine marines and armoured personnel carrier on patrol in Port Stanley, shortly after Argentine forces took control of the Falkland Islands and occupied the town in 1982.

of achieving independence from Britain. The Labour government under Prime Minister Harold Wilson held secret discussions about sovereignty of the islands with Argentina in the late 1960s (the government of which was at the time swinging between tenuous democracy and military dictatorship, leaning toward the latter). Lord Chalfont, the Minister of State for Foreign Affairs apprised the islanders of this and in a report to the Falkland Islands Executive Council advised that they "may one day be prepared to choose Argentine sovereignty." This, amongst other things, initiated the Falklands Emergency Committee that eventually led to the demise of sovereignty questions, at least from the islanders' point of view. Subsequent British governments continued to bend under Argentine pressure. When Margaret Thatcher formed a Conservative government in 1979, it was deemed that military defence of the islands was not practical from a financial or tactical standpoint, so Minister of State of the Foreign and Commonwealth Office responsible for the Falkland Islands, Nicholas Ridley, was dispatched to Stanley to convince the islanders that a gradual turnover of sovereignty to the Argentineans wasn't a bad thing. The islanders, as well as the Opposition in the British Parliament, rejected this idea. Given the drawdown in military presence, the withdrawal of Antarctic survey vessels and the British *Nationality Act* of 1981 (which denied islanders British citizenship if they did not have a parent or grandparent born in the UK), the islanders were exposed. The military junta of Argentina struck in April 1982 and the result is well known.

The Falklands Today

As a Canadian working in the islands, it is peculiar to see the ebb and flow of supplies, produce and other goods during the year. When shopping at the Seafood Chandlery in Stanley, I was confronted with a sign stating "the great potato famine of 2012 is over." The egg famine, however, wasn't, unless you knew someone from outside Stanley who had fresh eggs from their farm. This points to a not-so-subtle economic assault by Argentina. Argentinean policy has blocked shipping trade between the islands and Argentina and the other countries of the Mercosur agreement – Brazil, Paraguay and Uruguay – have followed suit. To supply the islanders and cruise ship tourists with produce that cannot be grown in the islands due to the acidic soil, the Chilean airline, LAN, has been relied upon to deliver foodstuffs that fill gaps in the islander diet. Unfortunately, this occurs only once per week as the Argentine government has restricted the airspace required for the LAN flights to get to the islands. Additionally, all Falkland-flagged vessels, for fishing or other commerce, are required to submit permits for entry to Argentine ports and are routinely barred. This denial of trade between the two is obviously counterproductive to both the islands and Argentina, so what is the impetus for the policy?

Argentina, despite a growing GDP, is plagued with a volatile and ineffective history of governance. The current government is led by President Cristina Fernandez de Kirchner who was elected in 2007 and again in 2011. Her party is Peronist, with an agenda that avoids the extremist practices of communism and pure capitalism, but tends to favour the working class and has become an emerging economy with a GDP in third place in Latin America after Brazil and Mexico. Argentina may be an emerging economy but it still has significant economic problems, including an inflation rate estimated at between 11-26% per year, depending on who you ask. Although tax cuts by the Kirchner government have garnered cautious approval from the unions, indigenous industry has lost


Credit: Author

A long-abandoned recoilless rifle.

Credit: MC3 David Cothran

*The Royal Navy Type 45 destroyer HMS **Dauntless** has been providing the UK's maritime presence around the Falklands since February 2012.*

steam. The cost of living has outpaced salaries within the country during the current recession. Argentina needs a rallying point. (It should be noted that the economy of the UK is not looking so hot right now either, and a rallying point might also be useful there.)

Enter oil, stage right. In 2010, Rockhopper Exploration started drilling exploratory oil wells in the Sea Lion prospect field north of West Falkland Island. Significant reserves have been found and several large oil and gas companies have expressed interest in the development of the fields. To the south, UK-based Borders and Southern Petroleum is drilling four exploratory wells. The reserves are promising. And promising means money. The resolve to claim sovereignty over the islands becomes firmer.

The 30th anniversary of the Falklands conflict is rapidly approaching. The Kirchner government has been careful to distance itself from the military junta headed by General Leopoldo Galtieri that led Argentina into the disastrous attempt to take the islands in 1982. But the current government also wants to make a point with its population. It is time, it could be deduced, to reclaim what was Argentina's land almost two centuries ago – that is, before oil was the rich resource it is now. Patriotic fervor is easy to fan when the winds are from the right quadrant.

Britain hasn't helped to defuse the situation. A Royal Navy Type 45 destroyer, HMS *Dauntless*, one of the most powerful ships in the Royal Navy, left the UK in February 2012 to replace the Type 23 HMS *Montrose* on station around the Falkland Islands, just months ahead of the 30th anniversary of the conflict. Notably, HMS *Dauntless* is an air defence destroyer and the Argentine Air Force has had little if no capability upgrade since the 1982 conflict. With the loss of any aircraft carrier capability by the Royal Navy, the deployment of a Type 45 cannot be faulted from a strategic view.

As well, British Prime Minister David Cameron accused Argentina in a speech of 'colonialism' following movement by the Mercosur states to impose economic pressure on the supply of goods and services to the islands. The reaction by Argentina was not surprising and the war of words escalated. Cameron is correct in that by definition colonialism is a policy by which one country extends its claim over another country. And the important point for Britain – and of course the citizens of the islands – is that as a British Overseas Territory, the islands' population chooses to be British. But Argentina continues to point to the ousting of Argentineans from the islands in 1833 when making its legal claim over the islands and has used this to press its case at the United Nations. Rafael Bielsa, then Minister of Foreign Affairs of Argentina stated before a 2004 UN decolonization committee that the views and wishes of the islanders were irrelevant to the question of sovereignty and that only the *interests*, not the *wishes*, of the islanders would be considered in sovereignty negotiations. Prime Minister Cameron has stated that sovereignty will only be negotiated at the desire of the islanders.

It must be stressed that economic sanctions and UN committee action are the only venues available now for Argentina to pursue its claim. The Argentinian military is in no posture to conduct another invasion of the Falklands and both the islanders and the British Parliament know it. So why the Type 45 in the South Atlantic? Why the Typhoon fighter aircraft at MPA? As the Kirchner government takes the idea of British 'militarization' of the South Atlantic to the UN as a lever towards acquiring the islands, the gap between the majority of South American states and the UK widens. In a speech before her people in January, President Fernandez de Kirchner urged the UK to "give peace a chance" and said that "we are not attracted to armed games, or wars." Given the provocative map of the Falkland Islands (or Islas Malvinas as they are known

in Argentina) in the colours of the Argentine flag that was superimposed behind her, the aim of the speech was difficult to discern. But John Lennon would have smiled.

But Argentina's military is not the only military unprepared to participate in a Falklands War Part II. In May, 2010, the UK released its Strategic Defence and Security Review revealing wide-ranging cuts to the military. From a naval perspective, the most stunning news was the immediate de-commissioning of the sole RN aircraft carrier, HMS *Ark Royal*, in anticipation of the completion of two new carriers of the *Queen Elizabeth* class by 2020. In the interim, Admiral Sir John 'Sandy' Woodward, Commander of the British naval forces during the Falklands war, warned that the loss of a fixed-wing carrier battle group exposed the islands to risk as they would become almost indefensible without the help of allies, in particular, the United States. His fear in this case is that the administration of President Barack Obama is softening its stance with Argentina and indeed the US administration has referred to the islands as the Malvinas. Land-based aviation assets without naval aviation in attendance would, in Woodward's opinion, be unable to repel military forces.

A Falklands King Penguin.

Conclusions

As the political salvos are fired across the Atlantic, the islanders watch. The sabre-rattling, the rumble of distant guns and the curious clash of cultures is nothing new to them. They are indebted to the British military for the efforts 30 years ago to keep the islands British. And from what I can see, islanders have little trust of the Argentinean government, even those born after the war. The almost amateurish propaganda streaming from the South American continent is countered with the British Foreign Office's refusal to enter into talks unless the Kirchner government first admits sovereignty is not an issue.

After Venezuelan President Hugo Chavez pledged to back Argentina with military assets if a war were to again break out with the UK over the Falklands, the islanders looked up with bemusement, but little concern. And when actor Sean Penn visited President Fernandez de Kirchner in Buenos Aries and denounced British policy by stating that "the world today is not going to tolerate any ludicrous and archaic commitment to colonialist ideology," the people in the pub looked up from their pints and just laughed.

The anniversary of a war, the confirmation of oil deposits around the islands, softened American relations with Argentina and a perceived weakening of British sea power have created significant, but mostly unspoken, anxiety amongst islanders and defence officials back in the UK. The likelihood of military action by Argentina is remote, but only for now, and who knows what will happen in the future. The triumvirate of Canada, the UK and the United States sits together on a rather uncomfortable political stage. The Canadians and Americans have healthy trade relations with Argentina, but were specifically excluded from the Community of Latin American and Caribbean States (CELAC). CELAC's specific goal is to lessen the influence of the United States and Canada both politically and economically throughout the Americas. It stands in some opposition to the Organization of American States (OAS) in which Canada and particularly the United States are major actors, so the waters become muddied when the question of allegiance to the UK's defence of the islands is raised.

In the event of hostilities breaking out over the Falkland Islands, what would be the role of the Canadian Navy? What would be the role of the US Navy? Would the United States agree to some form of hardware support (i.e., ships or aircraft) or would the UK be forced to go it alone again? I'm not sure, but it'll put Canada's navy in an awkward position. Rather than speculate, I think I'll have a pint at the Vic instead.

Kirk Binns is a retired Air Force pilot. He previously flew Sea Kings but now flies AS332L2 Super Pumas in the offshore oil and gas industry.

Economic Benefits of National Shipbuilding

Janet Thorsteinson

Canada's National Shipbuilding Procurement Strategy (NSPS) is underway. The NSPS is an achievement and one that deserves celebration but attention is too narrowly centred on the shipyards themselves and not on other businesses across Canada that can and should benefit from it. The Canadian Association of Defence and Security Industries (CADSI), where I serve as vice-president, has long insisted that national defence procurement must better support Canadian high-technology businesses and create more high-value Canadian jobs. Prime Minister Stephen Harper said in Vancouver on 12 January 2012 that the NSPS is the largest single hardware investment ever undertaken by the government of Canada. As he stated, "[i]t will create over its 30 year duration some 75 million person hours of work."[1]

Credit: Brian Burnell

*Foreign designs like this **Berlin**-class replenishment vessel could form the basis for future Canadian ships.*

But a 21st century industry should do a lot more than bend metal and the NSPS program can do much more than build ships. It has long been government policy that Canadian military and coast guard ships be built in Canada. CADSI believes the design of Canadian ships should also remain with Canadian companies. The design of modern warships is closely tied to the tasks they must perform. This means that ships for Canada must be able to work in Canadian waters – cold, ice-filled, stormy. This means that around the world there will be many ship designs and builders with small production runs as they attempt to build ships for their national customers' specific needs, particularly vessels that are to be used for defence.[2] Not only does buying or modifying foreign designs mean that ships may not be suitable for Canadian tasks, it also deprives Canadian businesses of work they are well qualified to perform, locks them out of future opportunities and it lessens their ability to undertake civilian work.

Ship design is just one of many specialties the NSPS should support. The federal government notes that the 2008 Canada First Defence Strategy "has set the stage for a renewed relationship with Canada's industry, knowledge and technology sectors, allowing unprecedented opportunities for every region of the country and creating an environment in which companies can plan ahead, positioning themselves to compete for defence contracts in Canada and in the global marketplace."[3] It isn't enough just to set the stage, however. Canada already has the policies and programs it needs to build a thriving defence industry but they operate in isolation and need to be augmented. There are several elements to this.

First, the NSPS itself has added a new and potentially game-changing element to defence procurement, the 'value proposition.' The winning shipyards under the NSPS are required to invest 0.5% of the contract value "for the benefit of the greater marine industry," defined as human resource development, technology investment and industrial development activity.[4]

Second, the Department of National Defence has launched Project Accord, an initiative to bring government, academia and industry closer to "the conception, development and analysis of future military capabilities for the CF." The engagement is designed to "ensure that critical and unbiased input is integrated into procurement processes from the outset."[5]

Third, the Technology Demonstration Program at Defence Research and Development Canada is designed to support "technologies fostered by Defence R&D Canada and Canadian industry in the context of real and potential future Canadian Forces capabilities, concepts, doctrine, operations, and equipment," and it aims at commercialization.[6] Each year approximately six projects are added to about 40 defence research and development projects, each funded with about $6 million.

Finally, the most important policy instrument Canada has to guide defence procurement towards innovation and value creation is the Industrial and Regional Benefits (IRB) program, managed by Industry Canada. In large procurements, the prime contractor must direct 100% of the contract value to Canadian businesses. Today, under the program, contractors are obliged to place $20 billion worth of orders with Canadian companies, a number that could rise to $40 billion by some estimates. Industry Canada has enhanced the IRB program recently, allowing

prime contractors greater flexibility in scheduling the identification of Canadian partners and granting 'multipliers' for certain investments. The farthest reaching change could be the encouragement of "original equipment manufacturers (OEM) to add Canadian suppliers to their GVC [global value chain] by crediting Canadian work done on international platforms against direct IRB requirements. This policy change provides a critical lever to achieve the IRB policy industrial development and export objectives."[7]

A pipefitter apprentice and her mentor at Irving Shipbuilding work on a ***Hero****-class Mid-Shore Patrol Vessel for the Canadian Coast Guard.*

These programs can be brought together in creative ways to support the Canadian Forces but despite enhancements, and the vast amounts of money they direct to Canadian businesses, participants in a recent review of defence procurement saw much room for improvement to the IRB program. For example, an Expert Panel Report entitled "Innovation Canada: A Call to Action, Special Report on Procurement" notes, "[a]lthough it was acknowledged by some that 'build-to-print' offsets were suitable for SMEs [small to medium sized enterprises] starting up the value chain, there is still little real incentive for foreign original equipment manufacturers to promote innovative technological capacity among Canadian suppliers and their subsequent integration over the long term into global value chains."[8] Many participants in the discussions leading to the report called for the government to tell industry what capabilities it considers high priority, support business in building those capabilities, and make the quality of IRBs part of the bidding process.

Beyond the IRB program, participants in the study concluded that despite some recent changes, the government could do more to support Canadian businesses. Unlike many other countries, Canada does not use defence procurement to enhance its industrial base. As well, it has been suggested that Canadian-based companies do not have the explicit policy support of the government. This means that Canadian companies are put in a difficult position – they are not guaranteed purchases on Canadian contracts and they are excluded on foreign contracts because of procurement restrictions in other countries. And furthermore, "even in foreign markets that are open, the lack of 'first buyer' support from the federal government hinders Canadian companies' marketing efforts against highly supported foreign competitors."[9]

Canadian businesses taking part in the study were aware that defence procurement is 'trade proof' because it is exempt from international trade agreements and asked that the Canadian government insist upon reciprocity with other countries. As noted earlier, they can't compete in foreign defence markets because of sole or domestic sourcing in areas where they are competitive and yet at the same time they still need to compete with foreign companies for Canadian government procurement.

In its summary of participant recommendations, CADSI's 2009 research report, "Canada's Defence Industry," concluded that accountability for both defence equipment procurement and the defence industrial base should be held by one Cabinet Minister. As the report stated, "[u]nlike virtually every other industrialized country, Canada divides Ministerial accountability for defence equipment and its defence industrial base."[10] The potential economic benefits of the NSPS and the rest of the Canada First Defence Strategy may vanish for want of leadership. It's time for someone to take charge, before it's too late.

Notes

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9. *Ibid*., p. 6.
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After over 30 years in the public service, Janet Thorsteinson became Vice-President Government Relations at the Canadian Association of Defence and Security Industries (CADSI).

Making Waves

Maritime Surveillance in the North

Laura Hoy

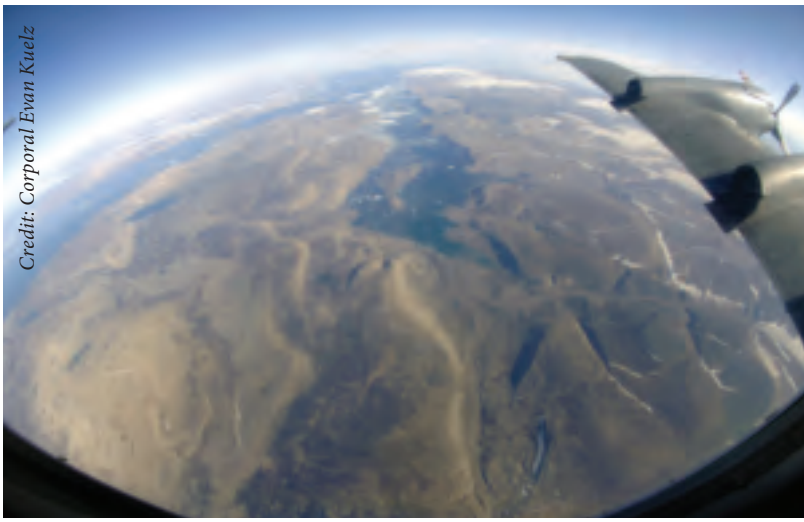
Climate change and the potential for escalating resource exploitation of diamonds, oil and gas have resulted in heightened maritime traffic in the Arctic. This, plus the changing security environment, has increased the importance of accurate maritime domain awareness of Canada's north.

A fundamental aspect of maintaining successful maritime surveillance is achieving continuous coverage for timely and comprehensive knowledge of activities. To date, no one system is available that offers a comprehensive solution to achieving continuous surveillance of Canadian waters. Therefore, Canada has developed a layered approach that incorporates capabilities that combine the greatest possible coverage with the potential to uncover even those vessels that do not want to be found. The layered approach is interdepartmental in nature and illustrates a high degree of cooperation among federal partners in the government of Canada.

Through this layered approach, data from a variety of sensors – such as the pre-arrival information reports, RADARSAT 2, Automatic Identification System (AIS), Long Range Identification and Tracking (LRIT), and the National Aerial Surveillance Program – result in a maritime picture in which vessels are plotted, tracked and recorded in near-real time (lapsing only the time used for transmitting the data). This information is amalgamated at the Marine Security Operation Centres (MSOCs) located on both East and West Coasts and in the Great Lakes. The MSOCs are mandated to generate maritime situational awareness by combining the knowledge of the government agencies located there. This mandate is accomplished through the collection, integration and analysis of the information sources of these agencies, assisting in the detection, assessment and support of a coordinated response to a marine security threat or marine event. Partner departments and agencies include the Department of National Defence, the Department of Fisheries and Oceans/Canadian Coast Guard, Canada Border Services Agency, the Royal Canadian Mounted Police and Transport Canada. This information sharing is essential to identify and track threats. The picture generated enables both maritime domain awareness and situational awareness on behalf of Canadian sovereignty, marine security, national defence and marine safety interests. Effective maritime surveillance leads to more accurate domain awareness, allows the demonstration of presence and can detect illegal or undesirable activities.

As its contribution to layered surveillance, Transport Canada is responsible for the *Marine Transportation Security Act* (*MTSA*). Under the *MTSA*, those vessels whose flag states have not ratified the International Maritime Organization's (IMO) International Convention for the Safety of Life at Sea (non-SOLAS vessels) over 100 gross registered tons (GRT) or carrying more than 12 passengers, and those vessels whose flag states have ratified the convention (SOLAS vessels) over 500 GRT, are required to submit a pre-arrival information report 96 hours prior to entering Canadian waters if traveling to a Canadian port. These reports are fed into the MSOCs for use in developing the recognized maritime picture.

In addition to information received by the MSOCs through pre-arrival reports, all vessels of 300 GRT or more are required to report their status and position to Arctic Canada Traffic Zone (NORDREG), the northern vessel traffic service system managed by the Canadian Coast Guard's Marine Communications and Traffic Services, while in Canadian waters north of the 60th parallel. This vessel information also supports the provision of safety services including ship inspections, ice routing, icebreaker escort, and search and rescue. Formerly voluntary, Transport Canada drafted regulations under the *Canada Shipping Act 2001* making NORDREG a mandatory regime that came into force for the 2010 shipping season.



A CP-140 Aurora maritime patrol aircraft surveys the northern tip of Ellesmere Island.

The Canadian Coast Guard is responsible for the construction and operation of the shore-based component of the national AIS network. This consists of shore-based stations at specific locations to track vessels within 50 nautical miles of the coast. AIS, a significant contribution to the achievement of domain awareness in the Arctic, is a ship- and shore-based broadcast transponder system operating in the VHF maritime band. The system sends ship identification, position, heading, ship length, beam, type, draught and hazardous cargo information to other ships as well as to shore. The IMO has mandated the carriage of AIS on board ships and the Canadian Coast Guard provides an AIS data feed to other government departments, as well as to the MSOCs. An AIS base-station is located at Resolute Bay, Nunavut, and other Arctic sites are being considered.

AIS information can also be collected from satellites and will, in the future, be simultaneously fused with space-based radar detection capabilities. RADARSAT 2 and AIS-via-satellite can be employed as complementary systems. Detections of ships from RADARSAT 2 can be fused with AIS information, providing identification of vessels and indications of any vessels not transmitting AIS as required, allowing surveillance operators to identify unknown tracks or vessels of interest.

The Canadian Coast Guard's LRIT program is another tool used for Arctic maritime surveillance. Unlike AIS, which is primarily a public broadcast system, LRIT is a worldwide satellite-based tracking system that uses existing shipborne equipment to track SOLAS-class vessels on international voyages for the purposes of enhancing maritime security, search and rescue, and environmental response. Implemented by the coast guard in 2010 through Transport Canada's *Canada Shipping Act 2001*, LRIT provides data on ship identity, ship position, and date and time of that position from vessels as far as 2,000 nautical miles from shore. This information is then fed into the MSOCs where analysts search for discrepancies in the recognized maritime picture generated from the data.

Moving from pure data feeds into human observation and remote sensing, Transport Canada operates the National Aerial Surveillance Program which conducts pollution prevention patrols, ice reconnaissance and maritime surveillance patrols in the Arctic. It uses a Dash 7, a short takeoff and landing aircraft, specifically designed to conduct operations in locations such as the Arctic. Fitted with an all-round view dome in its fuselage for visual observations, the Dash 7 is also equipped with remote sensors designed for oil pollution detection and

A specially-modified Dash 7 aircraft helps monitor ships and pollution in Arctic waterways under the National Aerial Surveillance Program.

situational awareness. The aircraft can be tasked at short notice to investigate locations in the Arctic, and has been a valuable participant in the Canadian Forces-led annual *Operation Nanook* in northern waters.

The layered surveillance model is the result of intense interdepartmental collaboration in fora such as the Interdepartmental Marine Security Working Group and the Arctic Security Working Group. Transport Canada chairs the interdepartmental working group, which coordinates the development of the government's marine security policy among the 17 federal departments and agencies with a marine security role. The Arctic Security Working Group, comprised of federal and territorial departments among others, is a forum to discuss sovereignty and security issues in the north. Co-chaired by the Canadian Forces' Commander of Joint Task Force North and the federal Department of Public Safety, the group seeks to identify opportunities for cooperation and coordination. Both working groups provide opportunities to communicate to address security gaps in the Canadian marine transportation system, including the Arctic, and to discuss sovereignty and security issues in the north. The collaboration of federal partners in coordinating and sharing maritime surveillance capabilities has promoted the development of the layered approach, born of necessity in the absence of a comprehensive solution to achieving persistent maritime surveillance in northern waters.

Although much has been done to improve maritime surveillance in Canada's north, more work remains. In addition to the activities mentioned, federal agencies continue to increase their presence in the Arctic through vessel patrols along the northern coasts and waterways

and Canadian Ranger patrols on land and ice. Canada will continue to work closely with its partners to address potential security challenges facing the Arctic, and ensure that Canadian goals for this challenging environment are met.

One Does Not Simply 'Close' the Strait of Hormuz

Timothy Choi

"One does not simply 'close' the Strait of Hormuz," or at least that's the position of the public when asked whether Iran has any chance of following through on its threats to do so, especially given the US Navy's (USN) extensive presence in the region. After all, how could a puny force of mere speedboats, armed with nothing more than a machine gun or two, have any prospects of success against the world's most powerful navy?

The issue here, of course, is the definition of *powerful*. Many people throw around the term as though it is some monolithic phrase that is applicable to all aspects of USN warfighting capabilities, from sinking warships to shooting down airplanes. The USN *is* powerful, and yet there is one area in which it is wholly inadequate, leaving a capability gap that Iran can easily exploit should it deem closing the Strait of Hormuz to be in its political interest.

This area is the realm of mine countermeasures (MCM). The USN admits as much in its 2010 "Naval Operations Concept" which states that naval mines are the "greatest area-denial challenge in the maritime domain."[1] This is so for several reasons. First, as demonstrated by the aftermath of *Operation Desert Storm* in 1991, locating and neutralizing mines is not easy. Despite having captured Iraqi minefield plans in their hands, coalition forces required several *years* before they could clear all the Iraqi mines in the Persian Gulf. Second, not only are mines difficult to find, they are dirt-cheap as well – as low as $1,500 each – which makes them extremely cost-effective. The 1988 holing of USS *Samuel B. Roberts* while she was escorting tankers through the Persian Gulf was the result of just one cheap Iranian mine, which caused $96 million in damage. This wasn't just an isolated lucky hit, either; 70% of USN ship casualties since 1950 have been the result of naval mines.[2] Finally, mines are relatively low-tech, which favours production by actors like Iran. Indeed, it is estimated that Iran has between 3,000-5,000 mines in its arsenal. Only 300 would be needed to close the Strait of Hormuz.

Credit: PH1 Chuck Mussi

*USS **Samuel B. Roberts** in dry dock for repairs after striking a mine in the Persian Gulf.*

Has the USN made improvements in searching for and neutralizing naval mines in the two decades since *Desert Storm*? If anything, the state of USN mine countermeasures has gotten worse. The recent announcement to double the number of *Avenger*-class MCM ships based in Bahrain from four to eight is a step in the right direction,[3] but the ships themselves, dating from the end of the Cold War, are getting long in the tooth. Their equipment is old and requires significant upgrading. Recently, the USN has been so dissatisfied with the performance of the current SLQ-48 mine-neutralizer that it is looking into asking the Europeans for their *Seafox* system. As well, the mode of operation of these ships requires them actually to sail into minefields in order to search for mines. While their fibreglass-covered wooden hulls make them immune to magnetically-activated mines, the ships and their crews remain vulnerable to mines activated by other means, such as acoustic signature.

Of course, the *Avengers* are not the only MCM assets available to the USN. MH-53 Sea Dragon helicopters can tow a sled behind them that acts as a decoy to set off most types of mines. As well, the infamous 'marine mammal' program trains dolphins to perform mine hunting and neutralizing missions. To add to this, the USN has Explosive Ordnance Disposal (EOD) teams consisting of divers equipped with hand-held sonars and other equipment for removing mines.

However, this triad of *Avengers*, MH-53s and dolphin/

Credit: MC1 Joshua Lee Kelsey

*A demolition charge detonates near the **Avenger**-class mine countermeasures ship USS **Scout** in the Strait of Hormuz.*

EOD teams is slow, inefficient and dangerous. Having to send ships and people directly into minefields is hardly a safe way of clearing mines. Recognizing this, the USN has been developing airborne and unmanned systems that would enable manned MCM assets to keep out of harm's way. In particular, the MCM mission package of the Littoral Combat Ships (LCS) is supposed to fill this role. With technologies such as an airborne laser-based mine detector, a 30 mm cannon that fires 'supercavitating' projectiles that aim to disable the mines, and remotely-operated underwater vehicles, it would seem that the USN is well on its way to developing systems that would allow it to hunt mines safely and quickly.

Aside from the qualitative difference in the new systems in terms of increased speed and safety, there is also a quantitative advantage. While the existing *Avenger* fleet is only 12 vessels, the LCS fleet is planned to be as large as 55. With 24 MCM mission packages expected, this will effectively double the number of MCM ships in the US Navy. It may seem unlikely that the USN will devote nearly half its LCS fleet to just the MCM mission, but the fact is that the other missions expected for the LCS, such as anti-submarine and anti-surface warfare, can already be handled (albeit to differing degrees) by major surface and submarine units. It would only make sense to give the LCS fleet a mission that is not and will not be filled by other navy assets.

Yet, as with the overall LCS program itself, the MCM package continues to experience a series of technical problems, threatening to delay its implementation. Despite these development problems, however, the USN has no choice but to solve them. To do otherwise would require that the USN surrender the part of its strategy that calls for full-spectrum dominance and start depending on (not just cooperating with) international partners to conduct key missions like mine clearance. Admittedly, the various NATO countries, especially the smaller ones, have trained extensively on MCM, as indicated by the composition of the two Standing NATO Mine Countermeasures Groups (SNMCMGs). However, NATO member contributions to an operation are never guaranteed and the SNMCMGs have yet to leave the comfort zones of the Baltic and Mediterranean.

Given this, the most powerful navy on the planet appears quite powerless in the face of mines, at least for the near and medium term. Until the LCS program and its MCM suite are fully developed and operational, the USN will have to depend heavily upon international partners for mine-clearing missions. Even then, they will not provide a quick solution. Iran *can* simply close the Strait of Hormuz – for weeks, if not months or years.

Of course, whether Iran *will* actually do so is a different story. I'm not an Iran specialist, but suffice to say that if economic sanctions are harsh enough to grind Iran's economy to a halt, then whatever losses in imports/exports it will suffer as a result of mining the strait may not matter. Iran may, in such a case, have nothing to lose, and Western navies could do little to deter it from closing the strait.

Notes

1. US Chief of Naval Operations and the Commandants of the US Marine Corps and US Coast Guard, "Naval Operations Concept 2010," 2010, p. 56.
2. Sabahat Khan, "Iranian Mining of the Strait of Hormuz: Plausibility and Key Considerations," INEGMA Special Report No. 4 (January 2010), p. 2.
3. Christopher P. Cavas, "US Doubling Minesweepers in Arabian Gulf," *Defense News*, 15 March 2012, available at www.defensenews.com/apps/pbcs.dll/article?AID=2012303150007.

*To Group or Not to Group?**

Ken Hansen

Placing warships into groups for the accomplishment of tasks is a very old process. For centuries, ships have fought in tight concentrations for both offensive and defensive purposes, sometimes as an organized force and other times simply as a gaggle. Symmetrical engagements predominated and the side with the numerical advantage tended gradually to 'erode' the combat power of the opponent. The relatively slow process of gunfire engagements gave opportunities for inferior forces to disengage from a potential calamity, which they often did after 'honour had been served.' Neither the invention of the internal combustion engine nor aircraft for manned flight changed

this. The doctrinal concept at issue was one of concentration, which enabled the materially driven calculus of naval warfare the best chance to play out according to design.

In his book, *Fleet Tactics and Coastal Combat*, Wayne Hughes shows that nothing counts in naval combat processes as much as numbers. Drawing on Frederick Lanchester's Square Law of Effectiveness, Hughes examines cases from history to show, among other things, that "a commander is better off with twice as many units of force than with units with twice the rate of effective firepower," and "the potential to effect concentration is greater at sea than on land."[1] The natural inclination of competent naval commanders with a numerically superior force has always been, as Hughes' dictum puts it, "to strike effectively first." While it is possible for an inferior force to defeat a superior one if it is able to locate the adversary first, communicate and manoeuvre efficiently to bring its combat potential to bear, and strike swiftly before the enemy can react to its presence, this happened only rarely. So a "deadly dance" resulted, with both sides stalking, simultaneously attempting to confuse, obstruct and deceive their enemy while preparing to attack. Hughes sums it up by saying "[n]othing about naval combat is understood if its two-sided nature is not understood."

Despite the compelling evidence that concentration is advantageous for offence and defence, keeping the fleet together is not a panacea. In fact, the concept of sea control demands that the assigned area be under the surveillance of a capable naval force, which has the inevitable effect of forcing the fleet to spread out. A dichotomy results: on the one hand, while intensive concentration is effective for the fleet locally, enemy naval forces (or pirates) could operate with impunity just outside its ability to *surveille*. The larger area is, therefore, not actually under control. On the other hand, dispersion allows commanders to *surveille* their assigned areas effectively but presents possibilities for defeat in detail of their forces, sometimes with an attendant loss of the all-important numerical advantage and the inability to achieve tasks due to disaggregating. This has happened with alarming frequency. The duality between the need to disperse for awareness and to concentrate for effectiveness has been the greatest challenge for operational- and tactical-level naval commanders. Admiral Nelson was especially mindful of this weakness and was forever lamenting the shortage of scouts for his battle fleet.

The information technology revolution and the advent of 'pulsed' forms of firepower from such weapons as torpedoes, aerial bombs and eventually missiles, finally altered the standard naval organizational construct, at least partially. A combination of information gathering, processing and display, and dissemination capabilities made it possible simultaneously to extend the information network for the sake of area control, and allow dispersed units to engage in an offensive fashion without the need to concentrate first to be effective. In this context, massing for defence becomes a very complicated series of calculations that weighs the relative strength of the attacker versus that of the defender. To put it simply, when massing is expected to be effective for defence, the fleet should be concentrated, which implies a loss of effectiveness for scouting. If the aggregate defensive capabilities of the fleet are inferior to the attacking capabilities of the enemy,

Credit: Cpl Johanie Maheu, Formation Imaging Services Halifax

*HMCS **Montreal**, HMCS **Charlottetown** and HMCS **Fredericton** on a task group exercise in the Atlantic Ocean.*

the fleet should be dispersed immediately to prevent annihilation, which will surely occur if the enemy can penetrate the defender's anti-scouting and counterforce measures. This was the first and only true revolution in naval warfare. The doctrinal implications are profound but are not well understood.

The new threat environment makes blindly adhering to a group concept about as dangerous an approach to naval organization as can possibly be imagined. The future does not hold much cause for optimism for the concentration of anything but the most powerful groups. The signpost of only the second-ever revolution in naval affairs will be whether or not the dawning age of robotics will affect the traditional requirement of warships to concentrate for defensive effectiveness. Will the anti-scouting and counterforce capabilities of traditionally disposed fleet forces be strong enough to defeat a swarming attack by unmanned vehicles that are both unflinchingly 'courageous' and absolutely expendable? Or, will networked forces develop the ability to engage collaboratively while still dispersed? The jury is still out on this one.

Certainly, a suicidal willingness to press an attack to point-blank range is nothing new in naval warfare. Swarming tactics have been employed in a number of ways in the past and knowledgeable people who understand their potential are developing them further. Countermeasures, as usual, are lagging behind the dangerous ideas of the innovators. The result will probably be that future naval commanders will have only the briefest moment to decide whether to fight it out or to take the prudent course of action and live to fight another day. Such revolutionary developments must ultimately affect the naval training of tactical practitioners and the educational formation of operational leaders. To hold dogmatically to old concepts that are inherently dangerous could prove to be the naval equivalent of First World War infantry charges against barbed wire and dug-in machine guns.

Notes

* Portions of this article appeared on Broadsides online discussion forum and originally as "The History and Theory of Naval Effects-Based Operations," in Alan English and Howard Coombs (eds), *Effects-Based Approaches to Operations: Canadian Perspectives* (Ottawa: Canadian Forces Aerospace Warfare Centre, 2008), pp. 95-102.

1. Wayne P. Hughes, Jr., *Fleet Tactics and Coastal Combat* (2nd ed., Annapolis: Naval Institute Press, 2000), pp. 40-44.

Another Falklands War?

Poseidon

There is quite a lot of sabre rattling at the moment in the dispute between Argentina and the United Kingdom over the Falkland Islands. I recently saw a television story about how the issue of ownership of the Falkland Islands is addressed in Argentine schools. The opinions expressed by teachers to students are that British occupation is unjust, that the islands have always belonged to Argentina, and that force should be used if necessary – again – to take them back.

In 1982, the British Armed Forces had very little presence in the Falklands. The naval presence was an Arctic patrol ship, HMS *Endurance*, which was very lightly armed and shortly to be recalled to the UK without replacement, and a few Royal Marines. Now there is a garrison of 500 soldiers, a modern air base (RAF Mount Pleasant) with a detachment of Typhoon fighter aircraft and helicopters, a modern frigate or destroyer with supporting auxiliary vessel, and a year-round patrol ship.

Argentina has not greatly improved its armed forces in 30 years. However it has always had the advantage of being relatively close, while the UK is 8,000 miles away! The Royal Navy (RN) no longer has aircraft carriers with embarked Harrier fighter aircraft to deploy. A determined attack by Argentina might well be successful, and most Latin American countries (and of course Sean Penn) seem to be supportive. How might the UK counter such a threat?

With a much-diminished surface fleet, are there other ways to counter Argentine sabre-rattling? An invasion force would certainly get a bloody nose from the vastly more effective force now defending the Falklands. Perhaps at times of heightened tension, the deployment of a nuclear submarine (SSN) or two to the South Atlantic – with embarked Special Forces teams – would tip the balance as to whether an invasion was a good idea.

Although military force may never be used to re-take the Falkland Islands, political pressure is certain to continue. If there was another invasion, could the UK mount a campaign given the drastic cuts to the Royal Navy which have taken place? It seems to me that the situation is somewhat analogous to 1981-82 when the UK was reducing the size of the RN, the carriers were to be sold, and amphibious forces were to be cut drastically too. Argentina might have been more successful in the early 1980s if the military junta ruling the country had displayed more patience and waited for the carriers and amphibious ships to be scrapped or sold. The next few years will see another such window of opportunity, as the RN will have no ability to deploy air power to the South Atlantic, pending the arrival of the new large aircraft carriers HMS *Queen Elizabeth* and *Prince of Wales* at the end of this decade.

View from the West:

The Escalation of Illegal Fishing in Asia

Ashley Milburn

Analyses of maritime disputes in the Asia-Pacific region often focus on the potential for conflict over oil and gas deposits. However, an equally – arguably *more* – important resource is also at stake and is increasingly at the centre of confrontations at sea. In December 2011, the competition for diminishing fish stocks in the region was highlighted when the captain of a Chinese fishing boat fatally stabbed a South Korean Coast Guard officer during a standoff in the Yellow Sea. This incident raises questions about the escalation of illegal, unreported and unregulated (IUU) fishing and its impact on the maritime environment in Asia.

The Food and Agriculture Organization (FAO) reports that some 53% of the world's marine fishery resources is fully fished, or fished to the maximum sustainable level, and another 32% is overfished, depleted, or recovering from depletion.[1] In Asia, according to the WorldFish Centre, a Malaysian research institute, fish stocks have decreased by at least 30% since the 1970s, a trend that the institute links directly to IUU fishing.[2] In fact, it is estimated that 3.4-8.1 million tonnes of fish are taken by IUU fishing each year in the Asia-Pacific region.[3] This represents up to 16% of the annual reported catch from the Pacific Ocean alone.[4] Such levels of exploitation, in conjunction with other environmental factors, severely hamper the sustainable management of marine ecosystems.

Not only does this practice have knock-on effects on ecosystems, but it also deprives coastal communities of their livelihoods and protein source, and can cost governments millions of dollars in lost revenues. As with any illicit practice, accurate figures are difficult to obtain, however, the value of IUU fishing worldwide has been estimated to amount to USD $10-$23.5 billion annually.[5] Given that many species of fish, particularly those that are in short supply, are highly valued in the marketplace, the economic incentive for IUU fishing is increasing. In early January 2012, a blue-fin tuna caught in the waters off Japan fetched a record USD $736,000 at a fish market in Tokyo, making it the most expensive fish sold globally and nearly doubling the previous record set in 2011.[6]

Given the compounding environmental and economic pressures on fisheries, vessels are being driven further out to sea to find their catch, often in resource-rich areas where maritime disputes are already a flashpoint amongst claimant states. As a result, security and diplomatic consequences are being added to the concern regarding IUU fishing in the Asia-Pacific region. In fact, Andy Cornish, director of conservation at the Hong Kong office of the World Wildlife Federation, predicts that the competition for seafood will lead to increasing conflict in Asia, as seen between the South Korean Coast Guard and the Chinese fishing vessel.

Since 2006, some 2,600 Chinese fishing boats have reportedly been caught fishing illegally in the South Korean Exclusive Economic Zone (EEZ).[7] This number has been increasing steadily each year; in 2011, more than 440 Chinese vessels were caught by South Korean authorities, up 46% from the year before.[8] A month prior to the fatal December stabbing, South Korea's Coast Guard launched a special three-day crackdown on illegal fishing, mobilizing 12 ships, four helicopters and a commando squad to an area of the Yellow Sea where 10 Chinese boats banded together with ropes in an apparent attempt to resist arrest. Photos taken of the scene show some of the Chinese fishermen taking up sticks in an attempt to stop South Korean commandos armed with clubs from boarding their vessels, illustrating just how quickly an IUU fishing incident can escalate.

Following the November confrontation and fatal December incident, Seoul indicated that it planned to introduce

Credit: Daniel Cubillas

Fishing boats near Kota Kinabalu, Malaysia.

Credit: US Coast Guard

*Stacks of fish lay in the hold of the Taiwanese-flagged fishing vessel **Yu Feng** as a result of alleged illegal fishing activity.*

a comprehensive package of programs to deal with illegal fishing in South Korean waters. However, the government was hesitant to respond strongly to similar cases in the past, including a deadly 2008 incident in which a South Korean Coast Guard officer was killed when a Chinese fisherman struck him with a shovel. While diplomatic considerations – primarily the North Korean issue – inhibit Seoul from taking a major political stance against the escalating violence at sea involving Chinese fishing vessels, other states in the region have taken action to address the issue of foreign fishing vessel crews that are reacting with increasing violence. In response to reports of fishermen attaching spears to the sides of their boats and throwing rocks at boarding crews in Australia's northern waters, the Australian Department of Defence approved new rules of engagement for the Royal Australian Navy (RAN) in 2006 to employ in its fight against IUU fishing. The new rules grant permission for RAN patrol boats to disable a vessel that refuses to be apprehended by targeting its engine or rudder. RAN vessels had previously only been allowed to fire a shot over the bow of vessels.

While one could debate whether such tactics employed by navies and coast guards inhibit or promote the escalation of IUU-related violence, the fact remains that under international law, the *flag* state of the vessel in question, not the *coastal* state, has the primary responsibility for regulating its activities, including ensuring that the vessel does not conduct unauthorized fishing in waters under the jurisdiction of another state. However, the extent of IUU fishing indicates that flag states are not fulfilling their responsibility adequately. Indeed, lack of effective flag state control has been cited as a key facilitator in IUU fishing.

A large number of fishing vessels register in states that run open registers, better known as flags of convenience (FoC). Registration in such states is generally a very simple and inexpensive operation and this, in turn, encourages flag-hopping, a practice where vessels regularly change flags in order to make it more difficult for inspection and control services to keep track of them. The International Transport Workers' Federation lists 32 countries as hosting FoC. Panama is reportedly the FoC of choice, and along with European Union companies, East Asian businesses dominate the ownership of FoC vessels. Ultimately, because nearly two-thirds of the world's oceans are outside national jurisdictions, better international cooperation and vessel registry is key in tackling the problem of IUU fishing.

While IUU fishing is not a new phenomenon, the escalation of violence as seen in the Yellow Sea last December, may be the catalyst needed for the international community to take action. Years of overall fisheries mismanagement has resulted in plummeting fish stocks in many regions of the world, particularly in Asia where fleets are engaging in illegal practices in order to satisfy domestic demand and lucrative export markets. In an age of increasing resource scarcity, not only is IUU fishing a symptom of a wider crisis in world fisheries, but it is one of a range of interrelated factors putting fish stocks in Asia at risk and ultimately raising the stakes on the high seas.

Credit: PO Jonathan R. Cilley

*USCGC **Boutwell** accompanies two fishing vessels apprehended in Asian waters for using illegal fishing equipment to transfer them into the custody of a Chinese fisheries law enforcement cutter.*

Notes

1. International Sustainability Unit, "Towards Global Sustainable Fisheries," February 2012, The Prince's Charities Fund, p. 8, available at www.pcfisu.org/wp-content/uploads/2012/01/ISUMarineprogramme-towards-global-sustainable-fisheries.pdf.
2. "Asian Fishing Communities Suffer as Fish Stocks in Region Decline," Voice of America, 18 June 2007, available at www.voanews.com/english/news/a-13-2007-06-18-voa11-66717832.html.
3. Asia-Pacific Economic Cooperation Fisheries Working Group, "Assessment of Impacts of Illegal, Unreported and Unregulated (IUU) Fishing in the Asia-Pacific," November 2008, p. iii, available at http://publications.apec.org/publication-detail.php?pub_id=103.
4. *Ibid*., p. iii.
5. David J. Agnew, John Pearce, et al., "Estimating the Worldwide Extent of Illegal Fishing," *PLoS ONE*, Vol. 4, Issue 2 (February 2009), p. 1, available at www.ecomarres.com/downloads/IUU1.pdf.
6. "Bluefin Tuna Sells for Record $736,00 in Japan," CBS News, 5 January 2012, available at www.cbsnews.com/8301-202_162-57352830/bluefin-tuna-sells-for-record-$736000-in-japan/.
7. "South Korean Coastguard Stabbed to Death in Illegal Chinese Fishing Raid," *The Telegraph*, 12 December 2011, available at www.telegraph.co.uk/news/worldnews/asia/southkorea/8950090/South-Korean-coast-guard-stabbed-to-death-in-illegal-Chinese-fishing-raid.html.
8. *Ibid*.

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Plain Talk:
What Don't We Know?

Sharon Hobson

This government does not like to share. It tightly controls access to all information, doling out only good news and material unlikely to cause controversy. Departmental officials are restricted in what they can say and every fact is evaluated for its political implications. When it comes to military decisions and acquisitions, Canadians are treated like small children who don't need to know the hows and whys, they only need to be told what to do. Pay your taxes and let us do the thinking seems to be the government's attitude.

The government does produce documents that provide a broad brush of information, such as the Canada First Defence Strategy (CFDS) and the annual budgetary Estimates and Public Accounts. But these documents raise more questions than they answer. For example, the CFDS describes big projects that the Department of National Defence (DND) will undertake over the next two decades. These include 15 warships, 17 fixed-wing search and rescue aircraft, 65 fighter aircraft, 10-12 maritime patrol aircraft and land combat vehicles, for a total of $45-50 billion. The CFDS also promises that DND "will continue to make ongoing investments in other capital projects to improve and replace key existing equipment and capabilities. These projects will focus on individual weapons, communications equipment and smaller support vehicles. Defence will also look at acquiring radars and satellites to improve surveillance capabilities, especially in the Arctic."[1]

However, there is no indication of which projects take precedence or their timelines. Despite CFDS promising a "comprehensive, multi-year Strategic Investment Plan," the government has kept us in the dark about the costs and scheduling of the military's re-equipment plans, as well as the rationale behind the equipment decisions. My recent request for the Strategic Investment Plan was denied because it "is a classified document and can not [sic] be shared, as it contains specific budgetary numbers that could affect competitive procurement processes."[2]

Previous governments released Strategic Capability Investment Plans (SCIP) – they were made available online in 2003 and 2004. They contained details of the 15-year plan for equipment projects, their budgets and scheduling. That was back when reporters were also able to get copies of the business plans for the army, navy and air force. Now those documents are available only through Access to Information requests, which can take 6-18 months. The delay allows government officials to respond to questions based on those (finally received) documents by saying the information is out of date and things have changed.

Credit: US Air Force

Airmen examine an F-35 Lightning II Joint Strike Fighter test aircraft.

Even Members of Parliament (MPs) are being refused access to information. Mr. Kevin Page, Parliamentary Budget Officer, told the House Committee on Government Operations and Estimates that "[t]oo often, almost as a matter of convention, Parliament is starved of information necessary to perform its fiduciary responsibilities."[3] Page wonders how Parliament can hold the government to account if it cannot get access to financial information about government plans.

The government's announcement that it intends to buy 65 F-35 Joint Strike Fighters is a prime example of this problem. This $9 billion (or more, depending on whose figures you believe) acquisition was announced without releasing the statement of operational requirements (SOR), the options analysis, or holding an open competition. Exactly how the air force determined that it needed exactly 65 of this particular aircraft remains a mystery.

But the F-35 is not the only example of government reluctance to be open when it comes to military matters. At the time of writing – third week of March 2012 – some unanswered budget questions[4] include:

- what is DND cutting in order to produce the $525 million in savings in 2012-13, as announced in Budget 2010?

- in addition to the $525 million in cuts, the Main Estimates 2012-13 note that the defence budget has been decreased by $232.2 million due to "net adjustments to the spending profile of major capital equipment and infrastructure projects to align financial resources with project acquisition timelines."[5] Which projects? By how much? What are the new timelines?
- the Estimates also note a decrease in the budget of "$255.7 million for the Canada First Defence Strategy." What does that mean? From where is the $255.7 million being cut? And why is this a separate amount; isn't the whole defence budget part of the CFDS?
- how much are the name changes (Royal Canadian Navy and Royal Canadian Air Force) costing DND?[6]

We also aren't being told about individual projects. For instance, what is happening with the fixed-wing search and rescue aircraft program, promised as a fast-track program in the 2004 budget? In 2010 a government-ordered National Research Council review of the program recommended rewriting the SOR, but the RCAF still has not publicized its plans for the aircraft acquisition.

Then there are submarines. The government and the navy are reluctant to part with any information on these troubled boats. Everything from their total cost to their operational status is closely held. For example, on 6 December 2011, at the Standing Committee on National Defence, New Democratic Party (NDP) MP Tarik Brahmi asked Vice-Admiral Paul Maddison, Chief of Maritime Services, "if I understood correctly, … we have no operational submarines." Maddison replied, "[o]ne submarine is currently at sea. The Victoria [sic] went to sea yesterday, as planned, to start trials so that it can be certified to a state of high readiness in a few months." Mr. Brahmi wasn't about to let the admiral get away with that kind of semantic sleight of hand. He responded, "[t]hat means it is in a testing period. There are no operational submarines, no submarines that could be sent out on an operation tomorrow morning." Maddison replied, "[y]ou're correct, sir."[7]

Meanwhile, the Joint Support Ship (JSS) program is encountering problems (again). Navantia has apparently withdrawn from the competition, and there were rumours that ThyssenKrupp Marine Systems (TKMS) almost tossed in the towel. However, the government quietly – the only press release was issued by Blohm + Voss Naval,[8] nothing came from the Canadian government – signed a contract with TKMS for a multiphase design study. Negotiations on the cost and capability trade-offs continue and it appears that the final result will not be a JSS or an AOR+, but merely a straight replacement for the current two AORs

Credit: Jacob Symmonds, Navy Public Affairs

*HMCS **Victoria** in the vicinity of Esquimalt, British Columbia, during sea training trials and exercises in February 2012.*

and possibly with less capability. But maybe not. Who knows? Certainly DND isn't sharing.

Other information kept from the public has included the $623 million that DND intends to spend on renovating the old Nortel campus as its new headquarters in Ottawa and the $477 million on a US military satellite. Both plans were uncovered by reporters who have been less than happy with the department's 'media response lines.' David Pugliese noted that he had received an email from a DND official who observed that in regard to the information being released on the Cyclone helicopter project, "[t]here's always the media line and then the truth."[9]

In the terms of former US Secretary of Defense Donald Rumsfeld, these are some of the known unknowns for Canadians, the things for which we need more information. These are distressing enough for a government that was elected on a promise of openness and transparency, but what about the unknown unknowns? If there's a long list of things we know the government isn't telling us, then what is it doing that we don't even know to ask about? Now that's really worrisome.

Notes

1. Department of National Defence (DND), "Canada First Defence Strategy," May 2008, p. 18.
2. Email to author, from Lauri Sullivan, Communications Advisor, DND, 2 March 2012.
3. Kevin Page quoted in Kathryn May, "Parliament 'Starving' for Info," *The Ottawa Citizen*, 1 March 2012.
4. Author posed budget questions to DND on 29 February 2012. Three weeks later – time of this article's submission for publication – DND had not provided any answers.
5. Government of Canada, "2012-13 Estimates: Part II – Main Estimates," p. 245.
6. Michael Tutton, "Ottawa Still Mum on Cost of Military Name Change," *The Chronicle Herald*, 14 March 2012.
7. Vice-Admiral Paul Maddison, Testimony at the Standing Committee on National Defence, 6 December 2011.
8. "ThyssenKrupp Marine Systems and Canadian Procurement Agency PWGSC Sign Joint Support Ship Design Study Contract," Press Release, 8 February 2012, available at www.blohmvoss-naval.com/en/press-releases/do/detail/id/4.html.
9. David Pugliese, "Defence Officials Hid Cost of Nortel Campus Renos," *The Ottawa Citizen*, 28 November 2011.

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Warship Developments: Australian Amphibious Capability

Doug Thomas

In the last decade there was an initiative to acquire a 'Big Honking Ship' for the Canadian Forces (CF). The term was used by then-Chief of the Defence Staff General Rick Hillier to describe a large amphibious vessel, and the intent was to improve the CF's ability to react quickly to a crisis situation by deploying a Standing Contingency Task Force at short notice anywhere in the world and support them from the sea. Troops would likely be flown to the mission area and then embark in one or more ships to travel to their destination, but their heavy equipment, fuel, ammunition and many other requirements would be transported and sustained from the sea. This is a very practical idea and one employed by a number of other countries, particularly the United States, United Kingdom and a number of European countries, and more recently is being adopted by East and South Asian states.

Although the talk of the Big Honking Ship has died down, there is still discussion in Canada about the necessity of a ship that includes some of its capabilities. Vice-Admiral Paul Maddison, commander of the Royal Canadian Navy (RCN), recently told the Senate's Standing Committee on National Security and Defence that "the navy's procurement of an amphibious assault ship would also greatly enhance the force's ability to project power ashore in both conflict and humanitarian and disaster relief situations." As I have stated before in *CNR*, one of the great advantages of such a large vessel, with a spacious flight deck and internal cargo volume, is the flexibility that it provides to conduct a broad range of operations. When looking at amphibious and general-purpose naval capability, it is useful for Canadian planners to examine the case of Australia, a fellow Commonwealth country with which Canada is often compared.

Australia can look back to World War I experiences in the Pacific and the disastrous Gallipoli campaign, the Vietnam War and the more recent UN Mission in East Timor, for examples of amphibious operations, sea transport and re-supply of combat troops. After dabbling with second-hand naval and unsatisfactory commercial platforms to fill this role, Australia has ordered the largest combat vessels in its history, the two *Canberra*-class Landing Helicopter Dock (LHD) HMA Ships *Canberra* and *Adelaide*. These ships displace 28,000 tonnes, and between them can transport 2,000 troops with their equipment, and can land these troops and sustain their operations ashore with organic helicopter and landing-craft connectors. I think they would definitely qualify as Big Honking Ships!

Australia is an island continent with most of its population living close to the sea. When a major natural disaster hits, the government frequently looks to its navy to provide assistance. Embarrassingly, none of the Royal Australian Navy's (RAN) large amphibious vessels was available to respond to Cyclone Yasi in February 2011. The Landing Platform Amphibious (LPA) ships *Manoora* and *Kanimbla* were being paid-off early due to serious maintenance issues which had plagued them for years, and the Landing Ship Tank (LST) *Tobruk* was undergoing propulsion repairs. *Tobruk*, now operational but aging, will likely be retained in service until the first of the new

Credit: Darren Mallett

A Royal Australian Navy Landing Craft Heavy (LCH) delivers soldiers to a beach during Exercise Sea Lion 2012.

LHDs is commissioned. But the RAN took advantage of the opportunity to purchase the recently completed Royal Fleet Auxiliary Landing Ship Dock (LSD) *Largs Bay* from the UK. This vessel, sold for about $100 million due to downsizing of the Royal Navy, will provide the Australian Defence Force with a modern, dependable ship which will be available should there be an urgent need to deploy it for humanitarian assistance or other operations.

HMAS *Choules*, as *Largs Bay* is now known, is a large ship with 1,200 lane-metres of capacity for transporting army vehicles, containers and other cargo – more than the two now-decommissioned LPAs and *Tobruk* combined – a well-

An army Landing Craft Medium (LCM8) makes its approach to the stern door of HMAS ***Choules*** *(ex-****Largs Bay****) during Exercise Squadex 2012.*

dock for landing craft, a 30-tonne crane, an elevator to the vehicle deck, bunks for 350 troops, and can accept helicopters up to the size of Chinooks. In other words, *Choules* is a very useful, general-purpose amphibious vessel. She will also provide a stepping-stone to the much greater amphibious capability which will become available when the two new LHDs join the Australian fleet.

It is unfortunate that after the initiative of a few years ago to develop a Canadian amphibious capability, which included studies, travel, training, writing a concept of operations, and an exercise landing of Canadian troops and armoured vehicles on the beaches near the US Marine Corps Base at Camp Lejeune, North Carolina, Canada could not have taken advantage of the opportunity to purchase *Largs Bay* for the RCN. I believe that some thought was given to it, and there were suggestions in this publication that it would be a good idea. In these days of $20 billion defence budgets, surely Canada could have afforded such a small expenditure for such a large boost to its general-purpose capability?

My guess would be that any official suggestion of such a purchase from within the Department of National Defence would have been shot down by concerns of the optics of doing so. What would the media say about another second-hand purchase from the Royal Navy while the (ex-British) submarines are never-ending grist for the media mill? The so-called media experts rarely mention the four years of dithering by the Chretien government before these submarines were purchased, a delay that led to deterioration of the submarines as they sat unused, nor the fact that their purchase was accomplished from within the naval budget by the early paying-off of *Mackenzie*- and *Annapolis*-class destroyers and their personnel. Nor do they mention the necessity of retaining a Canadian submarine force so that, at the very least, Canada can exercise its surface and maritime air forces in order to maintain their anti-submarine expertise in case it is needed elsewhere in the world where submarines proliferate.

I suggest the RCN needs an amphibious capability for the many good reasons discussed in this journal over the past seven years, and that the navy should be able to mount a campaign to accomplish this – such as with this missed opportunity to purchase *Largs Bay* – that is defensible to the media. The Canadian Forces has leased a commercial roll-on, roll-off (RO-RO) vessel for years to transport heavy equipment to and from Pakistan for use by Canadian forces in Afghanistan. A naval amphibious vessel could do this too, and much, much more.

In the past few years, we have seen how Australia was able to purchase a commercial tanker for naval use (HMAS *Sirius*) at a bargain price, and now *Largs Bay*. Why can the RAN take advantage of such opportunities and the RCN cannot? Is there a procurement issue here that needs attention?

Book Reviews

Red Star Over the Pacific: China's Rise and the Challenge to U.S. Maritime Strategy, by Toshi Yoshihara and James R. Holmes, Annapolis: Naval Institute Press, 2010, 292 pages, $33.71 (hardcover), ISBN 978-1-59114-390-1

Reviewed by Colonel P.J. Williams

The accession of China to the world's second-largest economy (having overtaken Japan in the process) has generated renewed interest in the Middle Kingdom. Not surprisingly, this renaissance has spread to the military realm and has provided the authors, both professors at the US Naval War College which has its own China Maritime Studies Institute (CMSI), the impetus to write this book.

Red Star Over the Pacific is not the authors' first foray into this subject – their previous major work, *Chinese Naval Strategy in the Twentieth-First Century: The Turn to Mahan*, sought to analyse the implications of great Chinese interest in American naval theorist Alfred Thayer Mahan's works. This book, in which the authors contend that China is "on the brink of commanding the seas with Chinese characteristics," serves to build on that foundation, supplemented by policy statements from various Chinese government officials at the highest levels. Indeed, the notes at the end of the book, which run to some 55 pages, contain an impressive number of references to Chinese sources which the authors consulted in the process of writing this book.

Much of the initial part of the book is centred on the issue of 'access' and what it means in the Chinese maritime context in particular. Here the authors make no bones about what they see as Chinese intentions. In their words it is to "strive to achieve and ensure access for itself – and amass the capacity to deny access to others." Whether gaining this access is done from a purely military standpoint, or with a view to commercial or economic interests, will give the West, and some understandably nervous Asian neighbours, much reason to follow Chinese maritime developments in the years ahead.

Subsequent chapters focus on geographic aspects (the so-called first and second island chains, which contain naval forces of the United States, Japan, South Korea and Taiwan), the threat posed by the People's Liberation Army Navy (PLAN) ballistic missile submarine fleet, China's interests in the Indian Ocean through which most of its energy imports flow, and implications for the United States.

There is also an interesting chapter comparing China's increase in naval capabilities with that of Germany's naval buildup under Kaiser Wilhelm II in the years leading up to the First World War. For various reasons the authors contend that the example of Imperial Germany is not very useful in attempting to analyse the implications of increases to Chinese naval capabilities. That said, the Chinese themselves are not averse to using (perhaps exaggerating) history to allay any fears as to what the development of a blue-water PLAN might portend. The book is filled with numerous references by Chinese authorities to the voyages of diplomacy, trade and discovery by the Chinese admiral Zheng He, six centuries ago, through coastal Southeast and South Asia.

Given the title of the book, and notwithstanding its at times alarmist descriptions of Chinese naval capabilities (in particular stated Chinese desires to build their own aircraft carriers, and developments of anti-ship ballistic missiles, ostensibly capable of sinking adversary carriers), the authors devote considerable time to implications for the United States. In the end they caution the United States from overreacting to Chinese naval developments, and encourage it to "cautiously accept some of Beijing's leadership in Asian waters," conditional on China's willingness to cooperate in regional maritime activities. Indeed, China has made some strides in this regard, having provided in 2008 a self-sufficient squadron of two destroyers and a logistics ship to the Gulf of Aden to participate in counter-piracy operations, operations in which the Canadian Forces have participated in the past.

China and the PLAN have made some impressive advances but the authors are careful to note that many challenges remain before China can truly be said to have gained command of the seas, not the least of which lie in what they call the 'software' domain of training, education and seamanship. Despite having much experience in the field of Chinese naval developments, the authors admit that Sinology is an "inexact science." Doubtless in the earliest days of the Cold War, the same description was levelled at those who sought to understand the Soviet Union and its motives. In the same way as Sovietology grew into a discipline, we can expect the field of Sinology to expand in the years ahead and as various governments, including our own, come to grip with how to engage with China. One wonders what the implications for the Canadian Forces will be in light of the challenges which this book highlights.

In all I found this book to be a highly readable study. The authors' writing styles read like a television or radio documentary, though I would have welcomed a few more maps to understand some of the geographical issues being discussed. Highly recommended.

The Great Wall at Sea: China's Navy in the Twenty-First Century, by Bernard D. Cole, Second Edition, Annapolis: Naval Institute Press, 2010, 322 pages, ISBN 978-1-59114-142-6

Reviewed by Matthew Gillis

The People's Liberation Army Navy (PLAN) has been transforming at a rapid pace over the last 25 years. Spending most of the 20th century as a force barely capable of coastal defence and heavily reliant on foreign technology, the PLAN now deploys task groups around the world to protect China's sea lines of communication and is increasingly comprised of indigenously designed vessels. Efforts to extend China's reach at sea continue to develop at breakneck speed. China continues to refit and make seaworthy the aircraft carrier ex-*Varyag*, and has apparently reached initial operating capability for the world's first anti-ship ballistic missile. As China develops its naval capabilities and works towards becoming a significant regional (if not global) competitor, no strategist should neglect China as an important and complex maritime power.

Bernard D. Cole has provided an exhaustive yet accessible study of China's navy in the second edition of *The Great Wall at Sea: China's Navy in the Twenty-First Century*. The book is organized logically, with Cole first building a background by giving an overview of China's naval and maritime heritage, spanning maritime history from the rule of various dynasties, the turmoil under Republican and early Communist governments, and more recent attempts to overhaul and modernize the PLAN. The next two chapters closely examine China's maritime interests, including notable geographical features and ocean resources, China's use of the sea for economic purposes, and China's maritime claims. This discussion is followed by a broad overview of the PLAN itself, its organization, budget, mandates and leadership. Subsequent chapters delve into the PLAN in greater detail, with sections dedicated to the ships and aircraft of the PLAN, personnel and training, PLAN doctrine and China's overall maritime strategy.

The Great Wall at Sea is full of thoughtful and informed analysis backed by its author's careful scholarship and decades of experience. I believe the analysis to be valuable to a wide range of audiences as discussion spans the full spectrum from Chinese maritime strategy to tactical considerations. For example, reflections on political, economic and social imperatives behind China's navy flow seamlessly into a platform-by-platform evaluation of capabilities, including direct comparisons to analogous Western systems. Of the range of topics, I found most interesting the discussion of Communist Party integration with the military (down to commissars at the ship level), the PLAN's somewhat disjointed relationship with other branches of the Chinese military and its historical struggles with indigenous technology, readiness and reliability.

I am unfamiliar with the first edition of the book, and so am unable to comment on differences in the second edition. The book is up-to-date, including, for example, discussion of Type 094 ballistic missile submarines in its overview of PLAN platforms. However, China's DF-21D land-based anti-ship ballistic missiles – the source of much pandemonium in US Navy circles in late 2010 – receive only passing mention, perhaps testament to the rapid pace of China's military developments.

Nevertheless, *The Great Wall at Sea* provides not only a comprehensive examination of the PLAN, but also a go-to guide for all things maritime and Chinese. It comes highly recommended.

War and Moral Dissonance, by Peter A. French, Cambridge, UK: Cambridge University Press, 2010, 343 pages, $90 hardcover, ISBN 978-1-107-00048-3, $30.99 paperback, ISBN 978-1-521-16903-5

Reviewed by Dave Mugridge

Peter French has decided for some reason to focus on US Marine Corps (USMC) and US Navy (USN) Chaplains. Here is a group who are surprised that the realities of modern war do not follow Hollywood norms – let me just point out that al Qaeda doesn't fight fair, Iraqi or Afghan civilians don't welcome an invader, the bad guys don't wear black Stetsons, and wars don't get won by technology alone. The subjects of this book seem as a group bereft of the corporate knowledge of their superiors or aware of the lessons learned by their predecessors in Vietnam or Korea.

Nonetheless, despite this apparent divorce from the realities of conflict, I was very disappointed to read how as a group they were as caught up in their careers as any military specialization. I suppose I was naïve enough to believe that men of the cloth were above the pettiness of annual appraisal reports and desiring soft foreign postings. Another interesting aspect was how dominated they were by those from established conservative Christian religions; despite the fact that the majority of their flocks come from a mix of trailer parks, recent immigrants and modern evangelical religions. Perhaps this suggests there

are schisms in the American dream or that for some it really is a vocational choice between the Marine Corps or McDonald's.

Despite my criticisms thus far, this book should be studied in preparation for command. It provides a wonderful insight into the fragility of the human condition both in terms of witnessing the horrors of modern warfare and how even disciplined Western militaries contain individuals who will revert to the basest of human behaviour – the recent shootings by an American soldier in Afghanistan illustrate that. For the naval reader who lacks combat experience ashore, this book provides an alternative viewpoint on how difficult the last decade has been on our army and marine colleagues. Theirs have been wars of death, dirt and dissonance, the results of which can be found in these pages as the author describes torture, murder and disobedience from the lens of the confessional, last rites or slit trench.

Having had time to reflect upon this tome I am reminded of the enduring nature of the principles of war and how they hold as true today as they did in the Korean War, Normandy, the Somme, Boer War, or Napoleonic Wars. They may not be the 10 commandments as practised by the subjects of this book but they do represent the axle upon which we as military men and women base both our moral and military compasses. So in conclusion Clausewitz and Exodus seem equally important in this volume.

Citizen Sailors: Chronicles of Canada's Naval Reserve 1910-2010, edited by Richard H. Gimblett and Michael L. Hadley, Toronto: Dundurn Press, 2010, 249 pages, illustrations, photographs, bibliography, index, appendices, ISBN 978-1-55488-867-2

Reviewed by Colonel (Ret'd) Brian K. Wentzell

This book is a companion to *The Naval Service of Canada 1910-2010: The Centennial Story*, edited by Richard H. Gimblett. Both are commemorative histories with multiple authors providing chronologically linked chapters covering a century of events involving the Naval Service of Canada. Neither volume is intended to be an exhaustive history of the people or events.

Citizen Sailors covers largely uncharted waters. Unlike various existing histories that describe the adventures of Canada's naval services during the Second World War, the Korean War and more recent operations, this book illustrates the trials, tribulations and successes of the Royal Canadian Navy Reserve (RCNR), the Royal Canadian Navy Volunteer Reserve (RCNVR) and the Canadian Forces Naval Reserve from beginnings to the present. Little has been written about these reserve components and therefore much of the history of the naval reserves is found in oral history, oral traditions, or must be drawn by extrapolation from recorded events. The editors and contributors deserve applause for their interest, determination and efforts.

As a retired army reserve officer, who commanded 2nd Battalion, Royal Newfoundland Regiment and Newfoundland Militia District, I also had some at sea experiences in HMC Ships *Annapolis, Protecteur* and *Fort Steele*. Thus, this citizen soldier has affinity with the citizen sailor, present and past, and an understanding of Commander Walter Hose's desire to establish a naval footprint across Canada. The militia, with different roots in Canadian history, had recognized the requirement to connect with the Canadian people in order to sustain the army institution. We have steadfastly worked to protect our footprint. Like naval reservists, the army's weekend warriors were treated with disdain by their regular force counterparts despite illustrious personal and unit combat records stemming from the world wars, smaller wars and other operations, including Afghanistan.

The editors have focused on the RCNVR as the main contributor to establishing and maintaining the footprint across Canada prior to and after the Second World War. It also provided the vast majority of the people to the wartime navy as it was the largest component. For the reservists, this was their finest hour and the skills that they brought to the navy were many, although not necessarily directly related to sailing and fighting a warship. What they lacked in these categories were more than offset by educational achievement and useful experience in running an organization. Richard Mayne covers their contributions very well in Chapter 4.

One of the myths that Mayne exposes is that the RCNVR of 1939-1945 was not really the people's navy that many had believed. Francophones and aboriginals were underrepresented as they were throughout all the services. Women were segregated into special branches. The RCNR was composed of experienced mariners and thus specialists in their own right and was therefore a distinct group. The RCNVR was an Anglo-Canadian men's service. Subsequent efforts, as discussed in this volume, have brought women and Francophones into the naval reserve, however, nothing is said about visible minorities or aboriginal citizens. This is unfortunate, as to be truly Canadian the Naval Reserve and other components of the Canadian Forces must recruit members from all cultural backgrounds in Canada.

In Chapter 7, Bob Blakely reviews the Naval Reserve from 1989-2010. While he records the many accomplishments of this reserve component during this period, he treads lightly on the challenges created by the total force concept. He does not consider the risks of continuous reserve employment to the institution composed of part-time reservists. Class 'C' service has created another reserve element that has more to do with regular force needs than reserve force sustainment. In endnote 8 he alludes to the gaps created by reserve personnel transferring to the regular navy, however, continuous reserve employment in the Maritime Coastal Defence Vessels (MCDVs) does little to sustain the operation of a Naval Reserve Division. The militia has the same issues, particularly with it staffing approximately 20% of the Afghanistan force. Key skills and experienced people are not easy to replace.

Finally, in another endnote, Blakely states that the Naval Reserve is better value than the Army Reserve. Bald budget figures without careful analysis are the things myths are made of. For a volume intended to destroy myths it is disappointing to see a new one created. I am not convinced that army reservists serving, being wounded and dying in Afghanistan are less valuable than other reservists serving their country in less dangerous tasks. The burden of proof is on Blakely and he has not discharged it.

In conclusion, *Citizen Sailors,* the above blemishes aside, is an informative and worthwhile purchase. Note, while supplies last, it can be purchased at a significant discount in one of those big American-owned box stores.

Keeping Watch: A History of the Navy League of Canada 1895-1965, by Ken Mackenzie, published by the author, 2010, $35.00, ISBN 978-0-9866068-0-9

Reviewed by Jan Drent

The evolution of the Navy League mirrors the development of Canada as a nation. A branch of the Navy League in Canada was established in Toronto in 1895, a very prompt colonial offshoot of the parent organization in Britain which had been formed only the previous year. The concept of a navy league to foster maritime awareness and to promote a strong navy was also rapidly transplanted to two other 'old dominions' – Australia and New Zealand – and eventually to the United States. In time Canada's Navy League focused first on welfare services for mariners during the two world wars and then expanded to its own youth programs which have become the Royal Canadian Sea Cadets and the Navy League Cadets. The original impetus – educating the public and explaining why naval forces matter – remains the work of the League's Maritime Affairs Program. The Navy League of Britain no longer exists as it has been subsumed by the organization responsible for Sea Cadets in the UK.

Ken Mackenzie, who became an archivist and naval historian after 10 years as an RCN officer, has traced the history of the Navy League of Canada up to 1965. His book is based largely on the records of the national meetings of the league. *Keeping Watch* therefore traces the various personalities who were the major players at these periodic meetings and the issues they dealt with. Mackenzie notes that the Toronto of 1895 was "the hub for much of the debate on Canada's future within the empire" (p, 15). Not surprisingly given its ties with trends then current in Britain, the second Navy League branch was established in Victoria in 1901. The author notes that there were tensions within the league between those who favoured a "nationalist" form of naval defence of establishing a Canadian naval service, and the advocates of a "contributionalist" approach of supporting a single navy for the Empire. These tensions were of course played out in the political theatre during the first years of the RCN's development after 1910.

The Great War meant several key milestones in the Navy League's growth. Awareness of the hardships being endured by naval and merchant seamen triggered public support to an organization called the British Sailors' Relief Fund. Prime Minister Robert Borden and others were moving towards supporting a merchant fleet independent of exclusive British control. Attrition at sea drew attention to the role of maritime power. The first branch of an organization intended to inculcate civic values and interest in the sea in youth – the Boys' Naval Brigade (modeled on a British movement founded in 1910) – was established in Canada in 1917. Nationalistic stirrings and these other currents came together in the establishment in 1917 in Montreal of a new Navy League of Canada. Branches of this new organization – 143 with 52,000 members – had sprouted up across Canada by 1919. The league became active in providing succour for merchant seamen and their families. Generous sums had been raised and the league in 1919 had the equivalent of $40 million in 2011 dollars to allocate. It distributed $600,000 – equivalent to $7.4 million in 2011 – to hostels for sailors and seamen in the Maritimes and Montreal.

The Boys' Naval Brigades were renamed the Sea Cadets in 1923 and fostering them became the focus of several Navy League branches during the lean years between the wars. Some cadets were placed at sea in merchant ships or found

their way into the new Volunteer Naval Reserve. At the national level the organizational preoccupation became supporting faltering seamen hostels and advocacy of naval defence was muted. Mackenzie notes that the league was often "flirting with insolvency" (p. 189). The annual Navy League Council meetings exposed disagreements within the organization due to tensions between the provincial branches and the central executive. Keeping the Halifax Institute – the local merchant seamen's hostel – alive was a recurring theme. The local league branch struggled as well. Ironically when war came in 1939 the federal government promptly requisitioned the Halifax Institute for use by the Royal Canadian Air Force and there was a new struggle to create a seamen's club.

In many ways Canada came of age during the Second World War. The Navy League expanded its work in helping seamen and their families and operated hostels in several seaports. Prince Robert House in Victoria was unusual in being a hostel for the RCN but the operating model was typical for league-run establishments for mariners. The old Union Club building downtown was provided by the city, refurbished and operated by the Navy League until 1951. The war brought a much closer relationship with a federal government which was greatly expanding its scope. By 1941 the government was funding Navy League activities under the *War Services Act*, in 1944 Angus L. Macdonald, the Minister of National Defence for Naval Services, described the Navy League as "the right arm of the Canadian Navy" (p. 295). The RCN became involved with the Sea Cadet movement by establishing new standards and providing instructors.

Mackenzie traces the Navy League up to 1965 – the year when the league closed its last hostel. The Seagull Club which it operated in Halifax for RCN sailors between 1947 and 1965 is still remembered. The author records that it was not well supported by ships and it's obvious from Council deliberations that the staff of the Flag Officer Atlantic Coast had issues about incidents connected with excessive drinking. The establishment of the Fleet Club on base property addressed many problems.

The league became increasingly focused on its youth programs. It's interesting that as late as 1950 the Cape Breton Division was planning to create a "Division of coloured lads." The author notes that Council ruled that "coloured lads are welcome but should not be segregated" (p. 319).

Keeping Watch has a good index, a list of the hostels and clubs operated by the league over the years, and pages of fascinating contemporary posters and political cartoons. Attractively produced, this book presents the evolution of the Navy League during its first 70 years as recorded in its governing meetings and conferences.

New Brunswick and the Navy: Four Hundred Years, by Marc Milner and Glenn Leonard, The New Brunswick Military Heritage Series, Volume 16, Fredericton, New Brunswick: Goose Lane Editions, 2010, 156 pages, ISBN 978-0-86492-632-6

Reviewed by Commander David Peer

Marc Milner and Glenn Leonard have crafted a light, enjoyable and well-illustrated book on New Brunswick maritime history that would make an excellent gift or addition to a personal library. *New Brunswick and the Navy* brings well-known naval history, such as the story of HMCS *Charybdis*, together with more obscure events, such as the battle of the Restigouche to provide a concise account of 400 years of New Brunswick history. As the book's title suggests the focus of this book is New Brunswick's naval connections from the arrival of Europeans to the building of Canada's new patrol frigates in the 1990s.

Having celebrated the centennial year of the Royal Canadian Navy in 2010, many readers will be familiar with Canadian naval history and the events surrounding the creation of the Naval Service of Canada and the navy's contribution to the two World Wars. This book reaches back to a longer tradition of fighting ships and sea action in the waters around New Brunswick. Readers will discover the origins of the name of New Brunswick's naval reserve division, how New Brunswick contributed to the war of 1812, and the New Brunswick connections in Royal Canadian Navy history.

Milner and Leonard reveal the rich naval heritage of one of Canada's original provinces and add depth to the story of our country's connection to the sea. We are a maritime nation, our naval traditions go back well before Confederation in 1867. As a native of New Brunswick, I was pleased to learn that although British Columbia can claim to have briefly owned some submarines, during the war of 1812 New Brunswick had its own fleet of sailing ships to defend the Bay of Fundy.

HMCS *Sackville* 1944

Credit: Canadian Naval Memorial Trust

A painting of HMCS ***Sackville*** *in action.*

HMCS *Sackville* had a busy time in the Second World War. We'd like to share one of her experiences with you.

Sackville was ordered back from British waters to Halifax for repairs to one of her boilers in mid-1944. This page dedicated to HMCS *Sackville* includes excerpts of Bill Murray's memoir *Naval Nuggets* describing the events of that return passage.[1]

"It was late July (1944) when we assembled in Lough Foyle for a westbound convoy. We were out a couple of days when the Engineer Officer reported problems in number one boiler. When steam was raised the chamber was found to be leaking. This had happened before and repaired, tested and found satisfactory.... We were ordered back to Londonderry and left the convoy. There was a rumour that we would go to Liverpool, England for repairs, but the RCN ordered *Sackville* home so that they could assess the problem.

In a week we were to sail with Convoy ONS 248 and act as plane guard for two small aircraft carriers operating with the convoy. Initially the sea was too rough for flight operations, but after about four days, the sea conditions and wind had abated. There were reports of two U-Boats in the vicinity of the convoy. As a result, two Fairey Swordfish[2] biplanes took off from one of the carriers and carried out anti-submarine sweeps around the perimeter of the convoy. They must have spotted a periscope as they were dropping bombs about two miles off the port quarter. We kept screening across the rear of the convoy but no contacts were picked up. I guess these attacks must have scared them off. It was around 1600 when the planes finished their patrols and then proceeded to return to the carriers.

In the meantime, the sea was starting to act up again and the swells were getting longer and rougher. This did not affect us, but the poor aircraft had to attempt landings on those small carriers. From their line of vision the flight decks must have looked like postage stamps.

One of the Swordfish (nicknamed Stringbags) made a couple of approaches toward the heaving flight deck. He veered off and on the third attempt he made a bumpy landing. I thought, "These guys really have guts." The second plane made his approach but had to climb and try again. He made a broad swing and got aligned with the flight deck, but just as he was about to touch down, the flight deck seemed to lift right up and the plane disappeared over the port side. I was Officer of the Watch and I immediately rang "Full Ahead" and called the Captain. I really thought those poor guys were goners. We steamed toward the spot where the plane went down but still no sign of it or the airmen. We had scramble nets rigged on the starboard side and hoped for the best. All of a sudden, we saw a little yellow life raft and there were the two airmen! How they got out of that old biplane unharmed I'll never understand.

We brought them aboard and took them below for warm blankets and a noggin of rum. When I got off watch, I joined them in the wardroom. These two young fellows were members of the Dutch Fleet Air Arm serving in British carriers. They were not in the least traumatized by their harrowing experience and took everything in stride. Without a doubt they were a special breed. They were shaken up a bit, but were returned to their ship in good condition. We received a 'well done' from the Senior Officer of the Escort."

Notes

1. A. William Murray, *Naval Nuggets from World War II*, a member of HMCS *Sackville*'s Wardroom 1943-1944.
2. A Swordfish aircraft is preserved and on display in the Shearwater Aviation Museum in Dartmouth, NS.

Announcing the 6th Bruce S. Oland Essay Competition

The *Canadian Naval Review* will be holding its annual essay competition, the Bruce S. Oland Essay Competition, again in 2012. The first prize of $1,000 will be provided by Commander Richard Oland in memory of his father Commodore Bruce S. Oland. The top two essays will be published in *CNR*. (Other non-winning essays will also be considered for publication, subject to editorial review.)

The contest deadline is **17 June 2012**. Submission guidelines, details of topics and judging criteria are available from naval.review@dal.ca or on our website at www.naval.review.cfps.dal.ca.

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HMCS *Victoria* Sea Training, Trials and Exercises

HMCS *Victoria* conducted a series of diving, helicopter hoisting and weapons system drills between December 2011 and March 2012. The submarine also participated in a naval task group exercise off the West Coast of Vancouver Island in March 2012. *Victoria* is conducting equipment trials and crew training so the submarine can be declared fully operational later this summer.

Photos by Corporal Malcolm Byers of MARPAC Imaging Services, Jacek Szymanski of Navy Public Affairs, and David Malysheff.