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DOES THE RCN NEED SUBMARINES?

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By Cdr Peter P. Chu

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DOES THE RCN NEED SUBMARINES?

AIM

1. The Royal Canadian Navy (RCN) needs a submarine force. It provides tactical options, strategic flexibility and an offensive strike that no other platform in the Canadian Armed Forces can replicate. This paper will look at a number of roles that support, why the RCN needs submarines. Specifically, submarine intelligence sharing between Canada and NATO countries, mission integration, and enhanced fleet training. Arguably, only one of these roles are needed to substantiate a submarine force, but all of them demonstrate strategic importance and are roles that submarines do best. Surveillance, long range underwater detection, deterrence and ASW warfare are capabilities that submarines are well known for, and still remain the bulk of a submarine work load. Even though, there have been technological advances in these areas, submarines have been fulfilling these roles for decades, polishing tactics, improving capabilities and still remain the most proficient and lethal platform to get these jobs done. Canada's submarine force is over a hundred years old it has gained global credibility and remains the RCN's only strategic asset.

INTRODUCTION

2. Unique among the assets in the Canadian Armed Forces (CAF) inventory, submarines are weapons of strategic deterrence whose presence—actual or inferred can alter an adversary's decision-making across an entire maritime theatre of operations.¹ As long as Canada has operated submarines there have been debates as to whether or not they are needed. These debates' often percolate from the financial requirements needed to operate a submarine force. Late in World War II Adolph Hitler's "wolf packs" shifted the momentum of the war during the hard fought Battle of the Atlantic.² German submarines relentlessly attacked allied convoys denying supplies and indirectly destroying troop morale. The German wolf packs and the tactics employed are a good example demonstrating certain roles can only be accomplished with a submarine. When these tactics are coordinated properly they have the potential to impose a dynamic and significant impact. The ability to employ a submarine in diverse roles and the potential impact that a submarine force can have, provide Canadian political leaders with options. With stealth, persistence and lethality, submarines, such as Canada's Victoria-class, can place an adversary's maritime forces at risk in any theatre of operations through offensive action. They can also amplify the defence in depth of the surface forces they are assigned to protect.³

3. Based on existing trends, a steady increase in global submarine construction is likely to be recorded for at least another four years.⁴ The Submarine Hunter-Killer (SSK) market has also continued to expand as more nations realize the cost-effective nature of a submarine fleet. In addition to German and French teams, China and Japan are now making a serious push toward establishing a presence in the SSK market.⁵ As the world submarine population increases, the

¹ M.A.G. Norman Vice-Admiral, *Canada in a New Maritime World: Leadmark 2050*, 39

² K. Doenitz Admiral, *Ten Years and Twenty Days*, trans. R.H. Stevens (George Wiedenfeld and Nicolson Ltd),

³ M.A.G. Norman Vice-Admiral, *Canada in a New Maritime World: Leadmark 2050*, 39

⁴ N. Jolin, *The Submarine Tsunami*, *Canadian Naval Review*, 12 January 2016, 1

⁵ N. Jolin, "The Submarine Tsunami," *Canadian Naval Review 11*, no 3 (Winter 2016): 3,

importance for Canada to continue operating submarines is more precedence than ever before. With more and more of the world's navy's incorporating submarines to balance their fleets, it is important that Canada maintains its submarine capability as a part of its balanced fleet. Leadmark 2050 states, "Submarines are likely to remain the dominant naval platform for the foreseeable future; hence are an essential component of a balanced combat-effective navy."⁶

DISCUSSION

4. An essential aspect of operating submarines is having an awareness of the water space within your claimed territorial boundaries. To avoid blue on blue interactions, NATO countries wanting to operate in and around Canadian Operating Areas are required to obtain permission from Canada. This understanding and agreement between NATO countries allows the RCN access to the global stage of submarine operations. With this access, Canada gains knowledge of NATO submarine movements, but more significantly it is aware of Non-NATO submarine movements. This form of intelligence sharing, is arguable the most important reason for Canada to maintain its submarine force. If Canada did not have submarines, it would not be privy to sensitive ASW intelligence. Not having access to this information, leaves Canada blind to three quarters of the maritime environment, with little awareness to what undersea vessels are operating within its own territorial waters. Being included into this circle of information sharing is crucial. For the RCN to fulfil the "Strong" aspect of the Defence Policy "Strong, Secure and Engaged"⁷ submarines are an essential tool in ensuring that the RCN is upholding their responsibilities to the CAF and to Canada. Submarines ensure that the domestic maritime environment is monitored and Canada is truly strong at home.

5. Through the sharing of ASW intelligence, the Commander of the Royal Canadian Navy (CRCN) increases his awareness and his ability to effectively employ Canadian submarines within NATO operations. In accordance with the new Defence Policy, Strong, Secure, Engaged (SSE), Canada has the responsibility to "act as a responsible, value added partner with NORAD, NATO, and Five Eyes partners."⁸ If Canada is going to bring value to NORAD, NATO and Five Eyes partners, it needs the ability to integrate with our NATO allies, a crucial aspect in building credibility and achieving operational success. Over the past four years, Canadian submarines have deployed to the Eastern Atlantic, above the Arctic Circle, Japan and the Mediterranean Sea. These deployments and missions prove that Canada's submarines can be apart of complex operations, in diverse environments with numerous navies and anywhere in the world. It proves, on a global scale, that the CSF is operating at a high level of proficiency and integration. This may be as simple as connecting communication paths, but can be as complex as deconflicting multiple submarines' water space management. Regardless of the complexity, the ability and trust of Canada's submarines to seamlessly integrate into multifaceted missions is crucial for the RCN on a global stage.

6. The ocean is a dynamic and multi-layered environment. Canada's coast line is over 240,000nm, one of the largest in the world. With this vast coast line, Canada requires the ability

<http://www.navalreview.ca/2016/01/the-submarine-tsunami/>

⁶ M.A.G. Norman Vice-Admiral, *Canada in a New Maritime World: Leadmark 2050*, 39

⁷ Department of National Defence, D2-386/2017E-PDF, *Strong, Secure, Engaged: Canada's Defence Policy*. (Ottawa: National Defence, c2017), 2.

⁸ *Ibid*, 14.

to monitor and conduct two types of surveillance, surface and subsurface. Surface surveillance, is complex and very difficult. It is a practice that demands, training and experience. One of the best ways to get surveillance training is by conducting live submarine operations. Currently, the RCN does have a device called an Expendable Mobile ASW Training Target (EMATT) to simulate submarine operations, but it is a far cry from operating with a real submarine. The ability to train surface ships, rotary aircraft, fixed wing aircraft, submarines and the operators involved is a significant benefit of having submarines that is forgotten and often over looked. If Canada were to give up her submarine force, the ability to train our fleet, aircraft and personal would be lost. As mentioned in the introduction, the world population of submarines is increasing and improving in tactics and technology, having the ability to train our fleet effectively is an enormous advantage. Another significant training role that submarines provide is the ability to train our NATO partners. In 2015, HMCS *Windsor* was tasked to train a French Rubis class submarine, before she conducted a Mediterranean deployment. This type of training, integration and inter-operability is an excellent example of CSF credibility, the trust that NATO countries have in the RCN and the operational excellence of our submarines. For ten days and with over thirty submarines on submarine exercises, HMCS *Windsor* successfully trained her and upon completion the French submarine continued on with operations in the Mediterranean Sea.

7. The second surveillance capability is sub-surface. Submarines have the ability to monitor large undersea areas for other submarines and detect and track surface vessels at great distances. This makes them suitable not only for naval combat, but for surveillance and patrol missions at home and abroad.⁹ Submarines are a very effective way to conduct surveillance beneath the surface. Their sensors are constantly reading the environment and the operators are constantly adjusting and adapting to improve detection chances. The Victoria Class submarine is currently being updated with the new sonar suite AN/BQQ-10. This new system has increased sonar detection ranges and operator's accuracy in discriminating and evaluating contacts.¹⁰ There is no arguing that a submarine has the ability to adapt to its surrounding environment, to alter sonar settings, and to use experience and intuition to maximize the sonar's capability and maximize detection ranges. At the same time a lot of discussion has been emerging with regards to unmanned underwater vehicles (UUV), under water array systems and whether they can replace submarines in this long range under water surveillance role. The UUV has a number of disadvantages. One of the most significant disadvantages is the time the UUV takes to relay a message.¹¹ By the time the UUV is able to communicate a message, often the information is inaccurate and its value has been lost. Another major disadvantage to UUV's is that they lack human analytical intuition and experience. Submarines are becoming quieter and quieter and the environment they operate in is complex and constantly changing. In this complex environment humans' evaluation of a noise source is often the difference between detection and a miss. This human evaluation, experience and intuition provides, a deeper analysis based on experience and training that the UUV cannot provide. Sound Surveillance System (SOSUS), Integrated Undersea Surveillance System (IUSS) and Surveillance Towed Array Sensor System

⁹M.A.G. Norman Vice-Admiral, *Canada in a New Maritime World: Leadmark 2050*, 39

¹⁰L. Willet, HMCS Windsor Completes BQQ-10 Sonar Fit, *Janes Navy International*, 6 March 2018, <https://www.janes.com/article/78384/hmcs-windsor-completes-bqq-10-sonar-fit>

¹¹Hall, "Will Underwater Drones Make Submarines Obsolete" (blog), 20 December 2016, <https://www.quora.com/Will-underwater-drones-make-submarines-obsolete>

(SURTASS) have also been used with limited success.¹² Similar to the UUV, a key disadvantage for these is the time it takes to transmit information. Although UUV, SURTASS and IUSS are modern and useful tools that enhance capabilities,¹³ the disadvantages point out their operational limitations and highlight that they are just tools and not a viable primary option. They are not in any position to replace submarines now or in the foreseeable future.¹⁴

8. Submarines are the RCN's ultimate war fighting machine, a platform through which Canada can control a substantial ocean space or deny it to others.¹⁵ During the Falklands War, the submarine HMS *Conqueror* sunk the Argentinean warship ARA *General Bernaldo*. Two torpedoes fired from a modern nuclear-powered submarine, neutralized the entire surface fleet of the Argentine Navy, returning it to the Argentine coastline where it played no significant part of the war.¹⁶ This power arguably gave the British sea supremacy during the Falklands War and ultimately protected the two British aircraft carriers from any naval attacks. This is one example throughout history that illustrates the impact of having a submarine in your arsenal, and how effective it can be in deterring your adversary. Some have argued that since Canada is not at war, Canada should not be putting the financial resources into maintaining this capability, and that tax payer's money should be spent elsewhere. Having a submarine force is not something that can be turned off and turned back on in a month or even a year. It takes decades to build up the infrastructure to support a submarine force; it takes decades to get your submarine force trained, proficient and experienced to the point where it can conduct ASW operations. A submarine is a complex machine that requires highly trained technicians to maintain it and highly trained crews to operate them.

9. Submarines remain the most effective means to counter an adversary's submarine force.¹⁷ It is immersed into the environment, living and breathing the water it is in and listening every second of every hour to its surroundings. A submarine's sonar operator can tell the difference from halibut to cod and from shrimp to a pod of dolphins. They are constantly listening and building a pattern of life (POL) that you cannot gain from any other sensor. Combined with this constant presence is the human interaction, intuition and the human ability to know or detect when some other presence has disturbed the immediate POL. Again, this type of analysis is something that a UUV or an underwater array cannot give you. When you are hunting for a submarine, it is this intimate engagement that incorporates hundreds of factors that only another submarine can truly appreciate and use to their advantage. The ability to effectively track, detect, and fight another country's submarine comes down to understanding the environment.

¹² Tarantola, "SOSUS: The US Navy's Long Range Undersea Ears for Spotting Soviet Subs" 12 June 2014, <https://nfuse1.cfc.dnd.ca/Citrix/store1Web/clients/HTML5Client/src/SessionWindow.html?launchid=1539190773773>

¹³ Tarantola, "SOSUS: The US Navy's Long Range Undersea Ears for Spotting Soviet Subs" 12 June 2014, <https://nfuse1.cfc.dnd.ca/Citrix/store1Web/clients/HTML5Client/src/SessionWindow.html?launchid=1539190773773>

¹⁴ Tarantola, "SOSUS: The US Navy's Long Range Undersea Ears for Spotting Soviet Subs" 12 June 2014, <https://nfuse1.cfc.dnd.ca/Citrix/store1Web/clients/HTML5Client/src/SessionWindow.html?launchid=1539190773773>

¹⁵ M.A.G. Norman Vice-Admiral, *Canada in a New Maritime World: Leadmark 2050*, 39

¹⁶ Lawrence Freedman, "The War of the Falkland Islands 1982," *Foreign Affairs* 61, no1 (Fall 1982): 204.

¹⁷ M.A.G. Norman Vice-Admiral, *Canada in a New Maritime World: Leadmark 2050*, 39

CONCLUSION

10. Over the past one hundred years, Canada has learned that it takes time, dedication, commitment and money to keep a submarine force fighting. But, if the time comes, and as a country we have decided not to keep or maintain this capability, Canada will be at a great disadvantage. The RCN does need a submarine force. Roles such as ASW training, long range under water surveillance and deterrence are best done with a submarine. Although there are modern tools, such as UUV and EMATT, their maritime awareness is limited and quickness in communication hampers their application. Throughout history, submarines have had a substantial impact on naval warfare and have deterred navies. There is no questioning the impact a submarine brings with it when it enters a body of water or an area of operation. To ignore this impact, has significant negative effects and can potentially cost lives. As technology improves so will submarines capabilities, their stealth will only get better and their roles will only become more significant. To ensure Canada is strong at home, having submarines to survey Canadian sovereign waters is a role that should be left to a submarine. Arguably, the most significant impact a submarine force has is the one where it is not in the water. Intelligence sharing and being included in the global submarine stage is crucial. It opens the door for information and brings awareness to present and future threats. With this information, Canada can train more efficiently, progress tactics and enhance our ability to integrate with our NATO partners. Having a submarine force is a costly adventure, and one that takes commitment and the understanding that there will be challenges along the way; however, this cost is small and one that is worth every penny, if the day ever comes when Canada needs a submarine force to take the offensive.

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