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THE PRINCIPLE CHARACTERISTICS OF THE RCN FUTURE OPERATING ENVIRONMENT

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Service Paper

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THE PRINCIPLE CHARACTERISTICS OF THE RCN FUTURE OPERATING ENVIRONMENT

AIM

1. This service paper will detail the principal characteristics of the future maritime operating environment for the Royal Canadian Navy (RCN). The intent of this service paper is to provide insight regarding the principal characteristics of the RCN's future expected operating environment to the Director General Naval Force Development (DGNFD) in order to provide background and guidance to assist in the development of naval strategy, concepts, doctrine and tactics as well as to aid in the identification of naval requirements for new capabilities. This paper will show that in addition to maintaining a capable traditional blue water force, the RCN must also ensure that the future fleet is flexible and able to adapt to counter asymmetric and unforeseen 21st century challenges.

INTRODUCTION

2. The maritime environment has become increasingly complex in the 21st Century. The dissolution of the Cold War, emergence of failed or failing states, as well as the emergence and re-emergence of non-state actors such as terrorist organizations and pirates have all contributed to this complexity.¹ These factors, combined with the presence of emerging maritime powers in Asia such as China, Vietnam and South Korea as well as the renewal of Russian militarization,

¹ Canada. Department of National Defence. Canada in a New Maritime World: Leadmark 2050. Ottawa, ON: Commander, Royal Canadian Navy, 2016. Last accessed 1 February 2018. http://navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/rcn_leadmark-2050.pdf

provide the foundation for a complex future naval operating environment.² In addition to these geopolitical vortexes, the future naval operating environment will also be defined by the pressures imposed by global climate change. Global climate change will most notably lead to mass migrations of civilian populations, as a result of dwindling fish stocks, agricultural and natural resources.³ It will also lead to the recession of the polar ice cap, resulting in the increased seasonal navigability of the Arctic and Sub-Arctic regions.⁴

3. The RCN of today was designed to counter the blue water Cold War peer threat posed by the Soviet Union, and has been slow to adapt to the demands of the 21st century. Examples of this slow adaptation include the lengthy delay to adopt and implement truly robust force protection doctrine and measures following the attack on the USS COLE (over eight years), as well as the protracted evolution of the Naval boarding party to adapt to the realities of the post 9/11 world.⁵ The requirement for the evolution of the boarding party was a result of the RCN conducting boardings in support of counter terrorism operations from 2001 onwards. Boarding party 2.0, the enhanced boarding party with improved offensive tactics and procedures, was not however established until 1 April 2015, a 14 year journey.⁶ Since the collapse of the Soviet Union and end of the Cold War, Western navies have found themselves engaged in many new

² Lombardi, Ben. "The Future Maritime Operating Environment and The Role of Naval Power". Defence Research and Development Canada. May 2016. Last accessed 1 February 2018. <http://pubs.drdc-rddc.gc.ca/BASIS/pcandid/www/engpub/DDW?W%3DSYSNUM=803867>

³Ibid.

⁴ Canada. Department of National Defence. Canada in a New Maritime World: Leadmark 2050. Ottawa, ON: Commander, Royal Canadian Navy, 2016. Last accessed 1 February 2018. http://navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/rcn_leadmark-2050.pdf

⁵ Canada. Department of National Defence. The Royal Canadian Navy Strategic Plan 2017-2022: Ready to Help, Ready to Lead, Ready to Fight. Ottawa, ON: Commander, Royal Canadian Navy, July 2017. Last accessed 1 February 2018. http://navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/analysis/rcn_strategicplan_2017-2022_en-s.pdf

⁶Ibid.

age conflicts and operations, but have been continually hamstrung with equipment, tactics and training that were designed for the single minded purpose of defeating another peer blue water navy. One of the greatest virtues of sea power is its flexibility to adapt to the changing circumstances as well as the ability to provide the desired effect to influence political ends. The RCN's ability to adapt and continue to meet its mandate, to provide these options and effects for the government of Canada, will surely be tested in the turbulent times ahead in the 21st century.⁷ In the future maritime operating environment, the RCN will be forced to deal with traditional blue water threats, in new theaters of warfare, as well as new threats poised in the littoral regions through asymmetric means. The pace at which the RCN will be forced to transition between the different types of warfare and adapt to these operations will be greatly increased compared to previous eras of conflict. By analysing and anticipating the characteristics and challenges presented in the future operating environment, the RCN can better prepare the fleet and its sailors to be adaptable and meet the challenges of tomorrow. This paper's analysis of the characteristics of the future operating environments will focus on three priority environments, the Arctic, the Pacific and the Littoral-Asymmetric.

DISCUSSION

The Arctic

4. As global climate change leads to an increased navigable season in the Arctic there will be an increased number of ships operating in the region. This will lead to environmental

⁷ Canada. Department of National Defence. Strong Secured Engaged: Canada's Defence Policy. Ottawa, ON. Canada Communications Group, 2017. Last accessed 1 February 2018. <http://dgpapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf>

pressures in the sensitive ecosystem as well as to issues challenging Canadian sovereignty. Canada claims the waters of the North West Passage as internal waters, this however runs counter to several other nations position that these waters are an international straight, most notably, the United States (US), China and Russia.⁸ On 26 January 2018, China released a white paper on their arctic policy⁹ In its white paper China has declared itself as a “Near-Arctic State”.¹⁰ China defines “Near-Arctic State” as “one of the continental States that are closest to the Arctic Circle”.¹¹ China claims to have a great interest and stake in the Arctic as “The natural conditions of the Arctic and their changes have a direct impact on China’s climate system and ecological environment, and, in turn, on its economic interests in agriculture, forestry, fishery, marine industry and other sectors.”¹² In recent years China has been continually sending scientific research vessels to the Arctic and has expressed great interest in securing sea routes through the Arctic to Europe to facilitate its flow of trade. It is clear that all of these actions threaten Canadian arctic sovereignty and could lead to future conflict.

5. The key characteristics of the Arctic maritime operating environment are the challenge of operating in a harsh environment with limited areas to seek shelter and resupply.¹³ The key factor of operating in the Arctic environment that must be addressed for the RCN is the ability to safely operate vessels in treacherous icy waters. For Canada this must be addressed through

⁸ Ibid.

⁹ The State Council Information Office of the People’s Republic of China. “White paper: China’s Arctic Policy”. 26 Jan 2018. Last accessed 1 February 2018. http://english.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

¹³ Lombardi, Ben. “The Future Maritime Operating Environment and The Role of Naval Power”. Defence Research and Development Canada. May 2016. Last accessed 1 February 2018. <http://pubs.drdc-rddc.gc.ca/BASIS/pcandid/www/engpub/DDW?W%3DSYSNUM=803867>

equipment tactics and training.¹⁴ From an equipment standpoint Canada is lagging far behind other arctic nations in terms of the numbers and capability of their fleet of ice going vessels. The HARRY DEWOLF class Arctic Offshore Patrol Vessel (AOPV) is a step in the right direction. It however, falls far short of what is required to effectively carry out robust maritime arctic operations as it lacks the armaments, ice capability and sensor suites to be a truly effective warship in the Arctic environment. Secondly, Canada's aging diesel electric VICTORIA class submarine fleet lacks the under ice endurance that either nuclear or air independent propulsion equipped submarines have and due to its dependability problems makes it unsuitable for arctic operations. Additionally, Canada needs to address the issue of arctic infrastructure in the creation of ports and industry if it wants to be seen as a true player in the Arctic. The creation of arctic infrastructure, beyond Nanisivik, will also be required in order to extend the range and operational abilities of the AOPVs, once they begin operations in the near future. Finally, naval tactics need to be amended from task force centric operations dependant on air power, to single ship operations that are weather and ice dependant.

6. The pressures indicated in para four from state actors and climate change necessitate Canada and the RCN take a more active role in the Arctic maritime operating environment. The key characteristic of the Arctic operating environment is the harsh environmental conditions of the Arctic and this demands that the RCN be equipped with the right equipment and support

¹⁴ Canada. Department of National Defence. The Royal Canadian Navy Strategic Plan 2017-2022: Ready to Help, Ready to Lead, Ready to Fight. Ottawa, ON: Commander, Royal Canadian Navy, July 2017. Last accessed 1 February 2018. http://navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/analysis/rcn_strategicplan_2017-2022_en-s.pdf

infrastructure for the job. It also necessitates that the RCN develop new tactics that focus on single ship surface operations rather than multi-ship task force oriented tactics.

The Pacific Region

7. The 21st century is witnessing the rise and militarization of the Asia Pacific maritime operating environment. The region is undergoing a military buildup focused on maritime capabilities that is unrivaled anywhere else in the world. Most notably it is witnessing the proliferation of both diesel electric and nuclear submarines. These are being employed by China, India, Vietnam, North Korea and South Korea.¹⁵ The geopolitical tensions in the region are highlighted by, but by no means limited to, China's claim to the Spratly Islands and their aggressive artificial island creation project in the South China Sea, as well as the tensions between Taiwan and mainland China.¹⁶ In addition to the region's struggle with China there are also the nuclear tensions and perpetual standoff between North and South Korea which have predominated the region for decades.

8. This volatile maritime operating Environment's key characteristic is the necessity to be prepared for both conventional, force on force, blue water operations as well as concurrent asymmetric and littoral operations. The shallow bathymetry of the South China Sea is ideal for submarine detection. The proliferation of submarines in the region however, leads to additional

¹⁵ Lombardi, Ben. "The Future Maritime Operating Environment and The Role of Naval Power". Defence Research and Development Canada. May 2016. Last accessed 1 February 2018. <http://pubs.drdc-rddc.gc.ca/BASIS/pcandid/www/engpub/DDW?W%3DSYSNUM=803867>

¹⁶Ibid.

challenges given the sheer number of submarines that could be operating in the region at any given time. The asymmetric and littoral threat comes from China's First and Second Island chain defence strategy regarding the series of islands that extend into the South China Sea. China has built military bases on these islands and has attempted to assert sovereignty claims over vast regions of the resource rich South China Sea.¹⁷ The militarization of these bases has included surface to surface missiles as well as airfields capable of launching air attacks against naval vessels operating in the region.

9. To operate in this environment the RCN needs to maintain its blue water skills in order to integrate with US led task forces and be prepared to conduct traditional anti-submarine warfare. This task is made more complex however due to the proximity of littoral threats and the possibility of asymmetric attack from the First and Second chain islands. This reality also necessitates the development of new tactics in order to be prepared to simultaneously fight in this multi axis environment and counter the threats posed by China's littoral forces based on the First and Second chain islands as well as traditional force on force engagements.

Littoral Warfare and Asymmetric Threats

10. The proliferation of failing and failed states has continually drawn naval forces into the littoral environment. An example of this is the RCN contributions to Operation UNIFIED

¹⁷Ibid.

PROTECTOR, the NATO led operations in Libya in 2011.¹⁸ These operations saw RCN frigates used as part of a naval blockade off the coast of Libya. These type of operations are extremely dangerous for conventional naval forces which are designed to counter the Cold War threat of engaging another peer force in a blue water engagement. Asymmetric threats such as swarm tactics from Fast Attack Craft (FAC) and Fast Inshore Attack Craft (FIAC) are a low tech and low cost solution for countries with strategic littoral interests but who may lack conventional naval forces. North Korea and Iran are two such countries which poses sufficient numbers of FAC and FIAC that they could pose a credible threat to regional shipping and naval forces in times of conflict.¹⁹ The Iranian strategic interest in the Straits of Hormuz and the international dependency on this sea line of communication for the shipment of oil make this one of the most contested regions in the world.²⁰

11. The complex and dangerous characteristics of the Littoral and Asymmetric maritime operating environment are rooted in the reduction of the stand-off distance from the enemy. By reducing this distance there is a reduction in the reaction time for a naval unit to take self-defensive measures. A blue water engagement provides sufficient sea room to counter enemy threats through defensive firing of anti-missile missiles and the use of speed and drastic ship manoeuvring to affect torpedo countermeasures. Littoral operations however reduce reaction time due to the close proximity to shore which reduces the detect to engage sequence required to

¹⁸ Canada. Department of National Defence. *Canada in a New Maritime World: Leadmark 2050*. Ottawa, ON: Commander, Royal Canadian Navy, 2016. Last accessed 1 February 2018. http://navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/rcn_leadmark-2050.pdf

¹⁹Ibid.

²⁰ Lombardi, Ben. "The Future Maritime Operating Environment and The Role of Naval Power". Defence Research and Development Canada. May 2016. Last accessed 1 February 2018. <http://pubs.drdc-rddc.gc.ca/BASIS/pcandid/www/engpub/DDW?W%3DSYSNUM=803867>

counter shore based missiles and may preclude manoeuvring for torpedo countermeasures. The proximity to hostile shore lines also brings other shore based weapons systems such as artillery and tanks to bear on highly vulnerable ships. In addition to attack from land, the proximity to shore allows for the use of swarm tactics by shore based heavily armed FIAC designed to overwhelm the fire control systems of conventional forces through sheer numbers. Conventional forces designed and equipped to fight a blue water war cannot defeat these types of attacks as their weapons systems are incapable of tracking and firing on a swarm of attacking craft. In addition to these direct kinetic threats there is also the risk of asymmetric threats such as water borne improvised explosive devices (WIED) as well as traditional sea mines. All of these characteristics make the Littoral and Asymmetric maritime operating environment the most dangerous for the RCN to operate in.

12. What the RCN requires for success in this maritime operating environment is the development and procurement of new technologies as well as complementary tactics and training. First and foremost among the requirements are technologies that can manually fire remotely operated weapons through the use of electro optical means without the requirement of a cumbersome fire control system. By eliminating the fire control system there is a reduction in the range of the weapons but the trade-off is an increase in the speed of target acquisition and the elimination of the possibility that the system becomes overwhelmed through the use of swarm attacks. The current tactic of using crew served 0.50 cal weapons needlessly puts sailors in harm's way and is ineffective due to the weapons not being gyroscopically stabilised, which makes them very susceptible to the influences of sea state and human error while aiming. Secondly, reducing the time required for the detect to engage sequence through improvements in

existing fire control systems and training techniques is required. Finally, serious discussion needs to take place among RCN senior staff and planners with regards to the risk tolerance of placing aging conventional forces in a high threat littoral environment vice purpose built littoral combat ships, such as those operated by other allied nations.

CONCLUSION

13. The increasing complexity and drastic variations of the RCN's operating environment in the 21st century bring with it a host of new challenges that must be addressed in order for the RCN to continue to be an effective fighting force. The key to meeting these challenges, will be in the ability for future fleets to be extremely flexible and seamlessly move from one type of warfare to the next as well as be able to conduct both simultaneously when required. It will require the procurement and installation of new technologies in order to counter the current and emerging threats. It will also require the development of new tactics to best utilize the new technologies. Finally, this will require RCN crews to have greater and more diverse training in the new technologies and tactics than any previous generation of sailors. To meet the challenges posed by the future maritime operating environment, the RCN needs to be able to continue to field a blue water navy that is capable of integrating into allied task groups such as those led by the US and NATO and contribute to a peer or near peer fight. The RCN must also be able to counter asymmetric threats poised in the littoral environment. By analysing the future maritime operating environment and developing the fleet of tomorrow with these challenges in mind the RCN will be, Ready Aye Ready, to meet Canada's maritime security commitments at home, in North America and abroad.

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