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The Limited Modern Support of an Aging Navy

Lieutenant-Commander Steve Argouin

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The Limited Modern Support of an Aging Navy

Lieutenant-Commander Steve Argouin

THE LIMITED MODERN SUPPORT OF AN AGING NAVY

The Royal Canadian Navy (RCN) played a significant role for Canada during the First and Second World Wars. In both cases, however, the RCN started the war modestly. It only had two ships at the beginning of World War I (WWI) and was left to conduct modest patrols on both coasts.[1] World War II (WW2) would see a six-ship RCN enter the battle, requiring significant growth to be relevant in the fight during the Battle of the Atlantic as well as operations in the Pacific Ocean.[2] The size of the RCN at the beginning of these conflicts would not allow it to project power or dream about exercising sea control on its own. It had to grow significantly to contribute to the efforts of the United States Navy (USN) in doing so. The USN and its allied navies have played a crucial role, especially since WW2 in maintaining Command of the Seas.[3] Although they have been successful in maintaining their control over most of the world, it cannot be assumed that this will remain unchanged in the long term.[4]

The power of America and its allies is contested today more than it ever has through various means that have marked the era of Great Power Competition (GPC).[5] While GPC has yet to trigger a direct war between the parties involved, it cannot be ruled out that such a war may happen in the near future. Although Canada would perhaps not have a lead role in such conflict, would the RCN be relevant in a coalition fighting a war against China in the Pacific in its current state, and what role would it play in such a conflict? This paper argues that the RCN's aging fleet

[1] Veterans Affairs Canada, "First World War - The Canadian Navy - Canadian Armed Forces - History - Veterans Affairs Canada," February 24, 2020, https://www.veterans.gc.ca/en/remembrance/people-and-stories/royal-canadian-navy/fww.
[2] Veterans Affairs Canada, "Second World War - The Canadian Navy - Canadian Armed Forces - History - Veterans Affairs Canada," February 24, 2020, https://www.veterans.gc.ca/en/remembrance/people-and-stories/royal-canadian-navy/sww.
[3] Robert C Rubel, "Command of the Sea: An Old Concept Resurfaces in a New Form" 65, no. 4 (2012): 7–8.
[4] Ronald O'Rourke, "Great Power Competition: Implications for Defense—Issues for Congress" (Congressional Research Service, August 28, 2024), 1, https://sgp.fas.org/crs/natsec/R43838.pdf.
[5] Ronald O'Rourke, "Great Power Competition: Implications for Defense—Issues for Congress," 1.

and combat limitations against a superior adversary would largely relegate any contribution to a conflict with China across the Pacific to logistical and patrol functions away from the high-end combat zone in service to the larger coalition fleet.

As this war has yet to happen, this essay uses various sources presenting modeling and war gaming reports as a hypothetical scenario for this conflict. These games and models, paired with examples of recent conflicts, suggest current threats would prevent the RCN's current fleet from operating in proximity to high-end combat. Drone warfare and the "*hellscape*" tactic also force the RCN to stay away from the fight.[6] The pace of the fleet modernization and expected timelines of delivery shall limit the RCN to logistical support for the foreseeable future and until new capabilities from the River Class Destroyers (RCD) and new submarines become operational. Notwithstanding political tensions between Canada and the United States (US), the assumption here is that both countries will close their partnership in the face of adversity following the 2025 federal elections.

A case study of the future

The RCN operated in the Pacific Ocean area during WW2 and the Korean War with success and is engaged in operations in that region today, while peace still prevails. However, any anticipated next war in that region will differ drastically from past conflicts as it is expected to be highly violent with rapid and significant naval losses in its early stage, according to a wargaming report produced by the Center for Strategic and International Studies (CSIS).[7] The

[6] John Grady, "'Hellscape' Swarms Could Be a Cost-Effective Taiwan Defense, Says Report," *USNI News* (blog), July 1, 2024, https://news.usni.org/2024/07/01/hellscape-swarms-could-be-as-cost-effective-taiwan-defense-says-report.

[7] Mark F. Cancian, Matthew Cancian, and Eric Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan" (Center for Strategic & International Studies, January 2023), https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/230109_Cancian_FirstBattle_NextWar.pdf

results of the scenario of China's amphibious assault of Taiwan came from a game ran twenty-four times in total.[8] The report lays out, in detail, the scenario, conditions for success, and various iterations of the wargame, which would all be important to design an entire campaign plan. The naval aspect and specifically the naval losses are especially salient for understanding the implications for partner navies of the United States, like Canada. The report includes base, pessimistic, and optimistic scenarios, as well as the Taiwan stands-alone option and the Ragnarok scenario, which looked at specific conditions needed for China's success due to its low level of wins in the other scenarios.[9] Taiwan Stands-Alone and Ragnarok will not be used due to their low likelihood and specificity. It must be noted that the USN's losses in all versions of the base scenarios included two aircraft carriers and between seven to twenty surface combatants, including a mix of destroyers and cruisers.[10] These significant losses are not easily replaceable over a reasonable time. Navies essentially would have to fight with the platforms available to them, which is no small task for a navy the size of the RCN. Pessimistic scenarios saw similar figures, and optimistic scenarios only saw decreased losses due to ships being further removed from the combat zone.[11] Consequently, the base scenarios provide the working figures for this study. The number of ships is certainly cause for concern; however, even more concerning from an RCN's perspective is the realization that those losses were linked to the inability of surviving large salvoes of long-range modern missiles.[12]

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[8] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 1.
[9] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 98.
[10] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 88.
[11] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 91–95.
[12] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 88.

Before going further, it is important to establish that the RCN currently operates only one class of surface combatants capable of defending itself against missiles; twelve Halifax Class Ships (HCS). Considering that the USN lost several destroyers and cruisers, which can both be employed as area air-defenders and have much greater air defense capabilities than any Canadian frigates, HCS finding themselves within range of Chinese anti-surface-ship missile (ASSM) batteries would unlikely survive engagements. ASSM includes all types of missiles capable of being used against surface ships, such as subsonic and supersonic Anti-Ship Cruise Missiles, ballistic anti-ship missiles, and hypersonic missiles regardless of their launch platform. Although defining the size of a large salvo is difficult, the Red Sea crisis involving attacks from the Houthis on USN ships included Iran-sourced drones, anti-ship cruise, and ballistic missiles totaling sixteen projectiles against two USN destroyers.[13] Arguably, allied ships and aircraft could help defend RCN ships, and the assumption is that they would if not already busy defending themselves against airborne and underwater threats. However, the loss of high-value aircraft carriers in most iterations of the war game cannot be overlooked. In fact, a stronger assumption must be made that any resources available were used to the maximum extent of their capabilities to defend these high-value units (HVU) well before attempting to defend an allied ship stationed for the very purpose of defending the HVU against submarine threats. To be clear, frigates would be there as part of the perimeter defense to take a missile or torpedo instead of the aircraft carrier.

The size of salvos incoming is not the only danger. Modern ASSMs can be expected to be used against coalition ships. During the Red Sea crisis, the Houthis conducted numerous

[13] "Houthis Attack US Warships after US Strikes in Yemen," accessed November 13, 2024, https://www.bbc.com/news/articles/c1knpnlp1leo.

attacks on civilian vessels as well as other attempts on military vessels using various weapons.[14] No military vessels have been hit so far, but it is only a matter of time before a warship is damaged or sunk if staying within range of modern ASSM weapons. It would be a mistake not to consider what types and amount of armament have been used by the USN over the course of this crisis. The USN reported high consumption rates of defensive weapons and munitions with numbers including a combination of twenty Evolved Sea Sparrow Missiles (ESSM) and SM-3 missiles, 120 SM-2 missiles, and eighty SM-6 missiles.[15] To an uneducated eye, the fact that HCS are equipped with sixteen ESSM could look as though they are equipped to face such a threat or even one posed by a more advanced adversary such as China. However, major differences exist in the capabilities between USN and RCN combatants. Only the USN Arleigh Burke Class destroyers will be considered here to make a comparison, as they are the workhorse of the USN. The variety of missiles they house was already mentioned, however, their ninety to ninety-six vertical launchers give them a clear advantage.[16] The sixteen medium-range ESSM interceptors that HCS carry provide effective yet limited point defense capability.[17] Furthermore, USN destroyers' Cooperative Engagement Capability (CEC) allows several warships to work in consort by sharing radar data and, therefore, the overall Combined Operating Picture (COP), providing a more efficient response to threats that would be faced in the scenario of a war against China.[18]

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[14] "Map and List of Attacks," Lloyd's List, accessed April 29, 2025, https://www.lloydslist.com/hot-topics/red-sea-risk/map-and-list-of-attacks.
[15] Geoff Ziezulewicz, "Navy Just Revealed Tally Of Surface-To-Air Missiles Fired In Ongoing Red Sea Fight," The War Zone, January 14, 2025, https://www.twz.com/news-features/navy-just-disclosed-how-many-of-each-of-its-surface-to-air-missiles-it-fired-during-red-sea-fight.
[16] "*Arleigh Burke*-Class Destroyer," in *Wikipedia*, April 29, 2025, https://en.wikipedia.org/w/index.php?title=Arleigh_Burke-class_destroyer&oldid=1288012186.
[17] "Evolved Seasparrow Missile (ESSM)," Missile Threat, accessed April 29, 2025, https://missilethreat.csis.org/defsys/evolved-seasparrow-missile-essm/.
[18] "Naval Sea Systems Command > Home > Team Ships > PEO Ships > DDG 51," accessed April 30, 2025, https://www.navsea.navy.mil/Home/Team-Ships/PEO-Ships/DDG-51/.

HCS, even through extensive refit, will never be able to accommodate such a missile-carrying capacity, and CEC will not be seen in RCN warships until the RCD are delivered.[19] In April 2021, CSIS published an updated Chinese ASSM capability status which classed the threat from those missiles severe.[20] As shown in Figure 1, ships coming within 5,500 km of the mainland of China would find themselves under threat of Intermediate-Range Ballistic Missiles (IRBM).

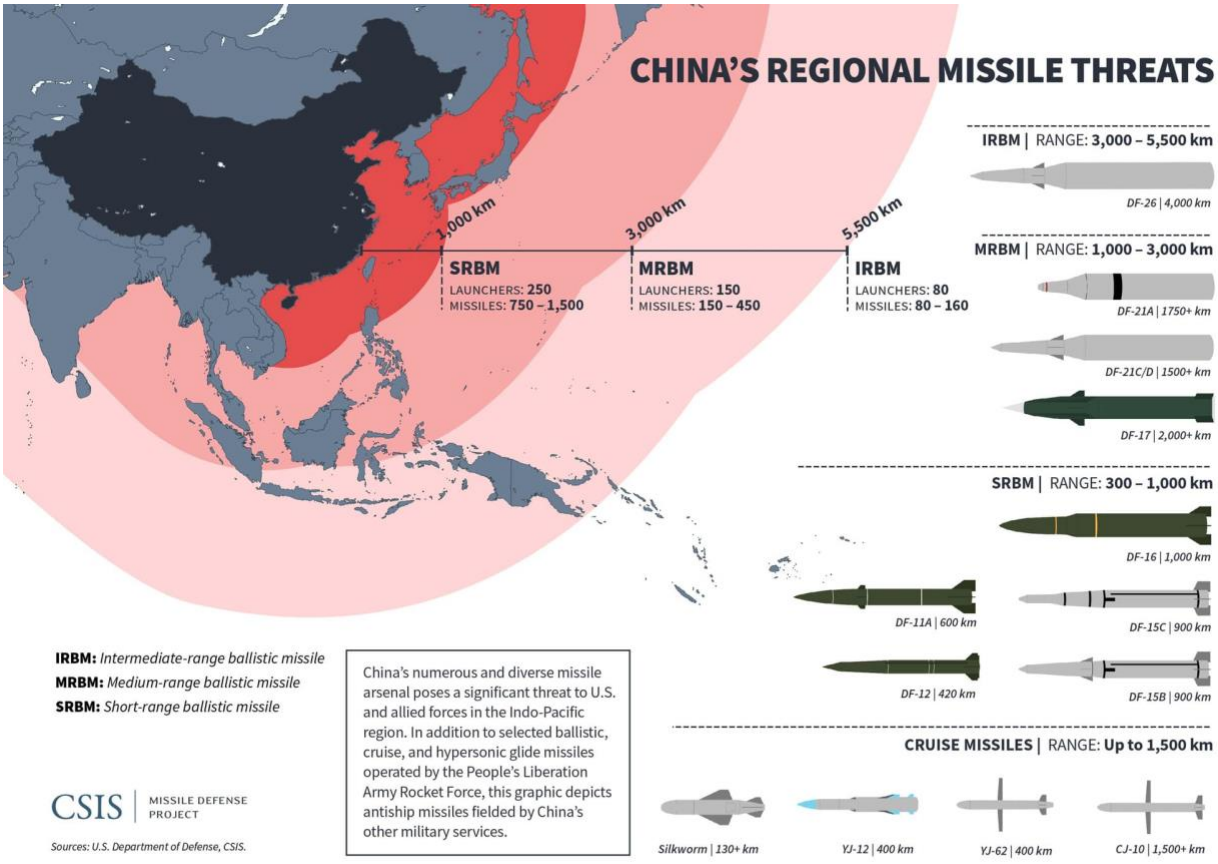

Figure 1 – China's Regional Missile Threats

Source: Missiles of China, U.S. Department of Defense, CSIS

[19] "River-Class Destroyer Fact Sheet," June 16, 2023, https://www.canada.ca/en/navy/corporate/fleet-units/surface/river-class-destroyer/fact-sheet.html.
[20] "Missiles of China," Missile Threat, accessed April 30, 2025, https://missilethreat.csis.org/country/china/.

Figure 1 also shows the threat becoming greater as ships move closer to China due to the layered defenses, including an increase in the variety of threats and a more significant increase in the number of missiles. Furthermore, the assessment from CSIS provided in the Figure 1 makes it clear that the threat in this environment is significant.[21]

When pairing both the actual threat and its associated ranges as reported in Figure 1 and the conclusion of the wargaming report, any surface combatant entering China's defensive zones will not be able to operate freely anywhere close to the high-end combat zone in proximity to Taiwan. They will represent little more than sitting targets for Chinese missiles. In fact, moving assets anywhere within the threat areas would be done carefully and the risk-to-reward ratio undoubtedly considered. In Figure 2, the ranges of the various types of missiles accord with the lines of the first, second, and third island chains making it clear China has carefully planned and prepared its defensive position for any impending fight in the Pacific Ocean with the United States and its partners.[22]

[21] "Missiles of China."
[22] "Explore Pacific Forum's Insightful Indo-Pacific Analysis," Pacific Forum, accessed May 6, 2025, https://pacforum.org/publications/issues-insights-issues-and-insights-volume-25-wp-1-keeping-one-at-arms-length-the-missile-nuclear-dimension-of-chinas-counter-intervention-strategy-in-the-western-pacific/.

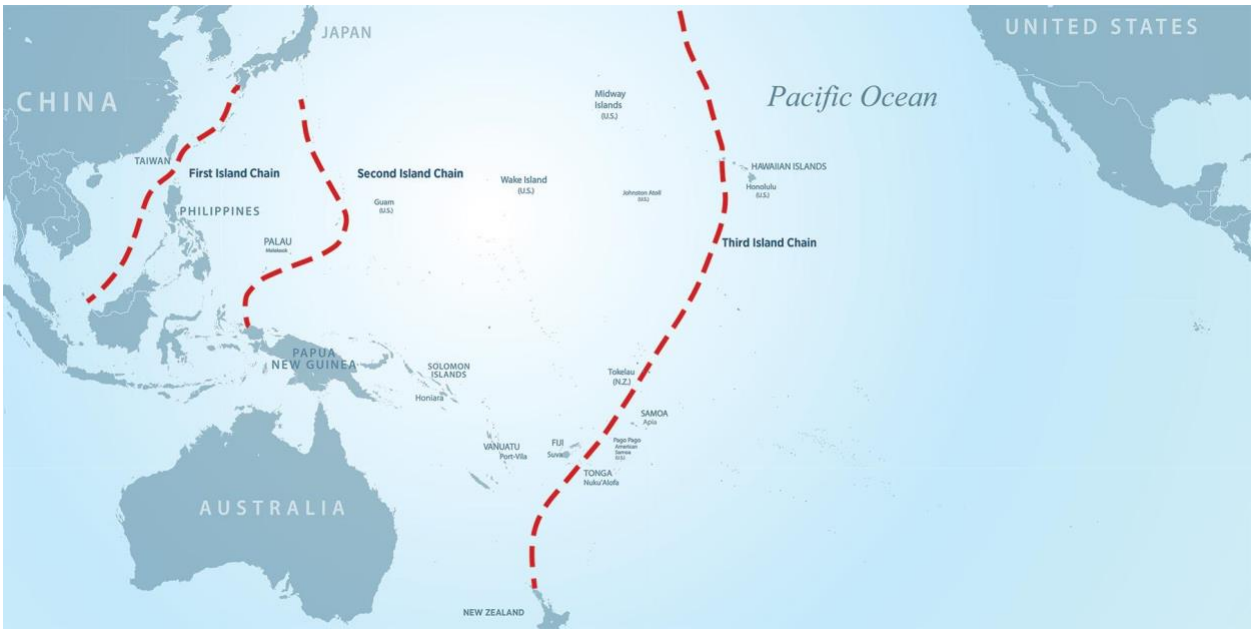

Figure 2 – Pacific Ocean

Source: U.S. Naval Institute

The comparison of both figures clearly shows that the first and second island chains are under direct threat from China's missiles. Furthermore, the CSIS report discusses iterations where the Andersen Air Base on the island of Guam was severely damaged in most cases.[23] Considering the results of the wargaming presented so far, it is clear that the area west of the first island chain will unlikely see surface combatants surviving, including more capable USN destroyers.

The second island chain, which is also under severe missile threat, as shown by the resulting damage to the Andersen Airbase, could see better survivability for ships with extensive air defense capabilities. RCN frigates perhaps could be employed as pickets to help the defense of aircraft carriers; however, low chance of survivability makes it unsustainable to operate west of the second island chain. In fact, until the RCN takes delivery of fully operational RCDs, coming under ballistic missile threat west of Wake Island may not be possible without risking

[23] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 116.

losing all or most of the RCN's only surface combatants. These figures draw an obvious conclusion that twelve warships is a small number in high attrition naval warfare. Even the fifteen, yet to be built, RCDs will represent a small number against a force the size of China.

Surface ships are, obviously, not the only assets a navy can deploy. In fact, submarines must be considered, especially in areas where missile threat prevents surface combatants from operating freely without significant risk. Coming back to the wargame report, it was made clear that Chinese amphibious ships and escorts that were sunk were attacked with allied forces missiles and key delivery platforms of those missiles included submarines.[24] While submarines would have a key role to play in such a conflict, the RCN's submarines are not equipped with ASSMs which would therefore reduce their use in this conflict unless they found themselves at range to employ their torpedoes.[25]

Any torpedo is a deadly weapon; however, the weakness of the RCN's submarines would likely be linked to their diesel propulsion requiring refueling as opposed to other nations' nuclear propulsion which does not require coming into port as often.[26]It must be understood that refueling a diesel submarine requires that it surfaces and comes alongside making it a target for the Chinese Rocket Force, and its extensive missile stockpile, should this refueling occur within the threat area presented above. To illustrate the constraint of diesel submarines, the CSIS report considered that only half of the diesel boats were actively on patrol at any time, while the other half was transiting to or from the combat zone.[27] In short, RCN submarines' impact would be limited as they lack range and surface area weapons. Constant surveillance of ports in proximity

[24] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 95.
[25] "Victoria-Class Submarines," accessed May 5, 2025, https://www.thecanadianencyclopedia.ca/en/article/victoria-class-submarines.
[26] "Victoria-Class Submarines."
[27] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 49.

to combat zone would make then easy targets during refueling. They would therefore be limited to coastal defense and surveillance away from high threat areas.

With these conclusions in mind, the RCN's aging fleet would be limited in the roles it can play. On one hand, the surface combatants cannot operate while under significant ballistic missile threat. On the other hand, its submarines could have a very limited role due to range, endurance and weapon limitation. The RCN's planned fleet modernization will still take several years before aging platforms retire and new capabilities are delivered. The HCS will need to stay at sea for close to fifteen more years before the RCDs relieve them of their service in sufficient numbers to get the RCN involved in more intense combat operations.[28] The submarine replacement project is not expected to deliver for another ten years at the earliest, requiring the Victoria Class Submarines to stay fight ready as much as they are technically capable until eventual retirement.[29] As will be covered next, drone warfare from current conflicts is also challenging the conceptual role surface ships will have in the early stage. RCN's submarines may be the only platform capable of surviving these should they venture closer to the combat zone.

Drone warfare and new technology impact on naval warfare

The Red Sea crisis gives insights on the significant number of missiles that could be used in a war against a much more capable and well-armed adversary like China. The cost of interceptors alone cannot be disregarded as a major factor in one's ability to stay in the fight. An ESSM coming at the low end of the spectrum at over $1.5 million back in 2024 is still far from the $2.2 million and the almost $3 million of a Tomahawk which will both equip the RCN's

[28] *The State of the Royal Canadian Navy | L'état de La Marine Royale Canadienne*, 2023, https://www.youtube.com/watch?v=FuD6Q1HXsKw.
[29] *The State of the Royal Canadian Navy | L'état de La Marine Royale Canadienne*.

future fleet (all figures are in US dollars).[30] Cost and production times will undoubtedly be very challenging in a long-lasting conflict. The war raging in Ukraine, as well as the Red Sea crisis have brought to light new capabilities that are as deadly but would appear to be at a lower cost while forcing withdrawal of surface warships back to safety areas.[31] Ukraine has been able to use uncrewed systems in the Black Sea very successfully against the more capable Russian Navy to a point where Russia has also invested in its own capabilities.[32] This conflict augers the important role of autonomous systems in maritime operations while all indications for the future in the Black Sea point towards an even greater role for those technologies.[33] Could this theatre be a singular case where drones, robotics, and autonomous systems play such a critical role? Perhaps it could, although experts agree that this trend will continue in a broader scope with implication for a potential war over Taiwan.[34]

In fact, China is currently in a better position than the United States to take the lead in this area of warfare based on its already existing inventories, amongst other factors.[35] It is further believed that China would employ tactics similar to those of Ukraine even though they are not assessed to be at an expected disadvantage the way Ukraine was initially as this would more apply to Taiwan in this case.[36] The concern here is the use of tactics similar to those that have

[30] Wes Rumbaugh, "Cost and Value in Air and Missile Defense Intercepts," February 13, 2024, https://www.csis.org/analysis/cost-and-value-air-and-missile-defense-intercepts.
[31] Stas, "Low-Cost Attacks Challenge U.S. Navy," *RBTUS* (blog), July 31, 2024, https://rbtus.com/low-cost-attacks-challenge-u-s-navy/.
[32] George Scutaru and Murman Margvelashvili, *Defending Maritime Assets: Approaches to Critical Infrastructure Protection* (Dordrecht, NETHERLANDS, THE: Springer Netherlands, 2025), 172, http://ebookcentral.proquest.com/lib/cfvlibrary-ebooks/detail.action?docID=31946532.
[33] Scutaru and Margvelashvili, *Defending Maritime Assets*, 172.
[34] *Swarms over the Strait: Drone Warfare in a Future Fight to Defend Taiwan*, 2024, https://www.youtube.com/watch?v=OLl5xgPl7VA.
[35] *Swarms over the Strait*.
[36] *Swarms over the Strait*.

caused older generation warships to sink in the Black Sea, paired with a much bigger inventory and therefore consistent threat to surface ships such as HCS.

While HCS can defend against a surface drone, extended attacks from large amounts of drones would put them at a clear disadvantage and likely result in their sinking. Another evidence of this growing trend is the use of drones by the Houthis in the Red Sea which is, as discussed earlier, causing the US to expend significant amounts of ammunition.[37] Although none of the attacks in this case have been successful against military vessels so far, the risk remains present with every attempt. Given Ukraine and its successes in such operations, drones alone will not be able to win a conflict.[38]

The sinking of the Russian warship *Moskva* is believed to have been caused by missiles aggravated by a design that had fuel for missiles stored on the deck.[39] However, the presence of drones in the area was confirmed by footage that showed they could have been used as targeting units remains.[40] Considering drones can be used to gather intelligence and provide targeting information to enable missile strikes, it would then be of the utmost concern for a fleet already facing a significant missile threat from China. In response to the increasing threat of drones, the US is actively seeking a way to tip the scale back.[41] In order to face a larger inventory of a variety of drones, including some similar to large US drones and other smaller, cheaper, and

[37] "Houthis Attack US Warships after US Strikes in Yemen."
[38] ESD, "Sea Drones at War: Tactical, Operational and Strategic Analysis of Maritime Uncrewed Systems," September 5, 2024, https://euro-sd.com/2024/09/articles/40191/sea-drones-at-war-tactical-operational-and-strategic-analysis-of-maritime-uncrewed-systems/.
[39] ESD, "Sea Drones at War."
[40] ESD, "Sea Drones at War."
[41] Chiara Fiorillo, "Pentagon Plots 'unmanned Drone Hellscape' to Protect Taiwan from China Invasion," The Mirror US, August 24, 2024, https://www.themirror.com/news/world-news/pentagon-plots-unmanned-drone-hellscape-655976.

swarm-capable drones, and a greater production speed the US is looking into what the Pentagon has called a "hellscape" plan.[42]

As reported by the Washington Post in 2024, the Commander of United States Indo-Pacific Command, Admiral Paparo is planning to "turn the Taiwan Strait into an unmanned hellscape" to allow time for USN assets to transit and concentrate.[43] While the technology used to accomplish this plan is of a classified nature and will not be discussed here, an interesting fact resides in the desire to use this tactic for up to a month in order to action other parts of the US's plan in case of a large invasion of Taiwan.[44] Furthermore, the US recognizes the need to develop these capabilities in the drone industry both from a military point of view and an industrial aspect.[45] It is not difficult to understand that in a scenario where the USN turns to uncrewed systems, which include aerial, surface, and sub-surface drones, partner allies would simply decide to steer clear of this area.

Of course, the RCN in all likelihood would do the exact same considering its current capabilities would not be able to contribute in the combat zone. Contribution to the research and development of these capabilities would be one way to contribute to this plan; however, this possibility would fall beyond the scope of the paper. What does, however, fall within the scope is the way the current fleet could contribute to the resupply of these disposable uncrewed assets. In "*Advantage at Sea"* the US Naval Service discusses the operating concept Distributed Maritime Operations (DMO).[46] This concept highlights the importance of "mass overwhelming combat

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[42] Fiorillo, "Pentagon Plots 'unmanned Drone Hellscape' to Protect Taiwan from China Invasion."
[43] Josh Rogin, "Opinion | The U.S. Military Plans a 'Hellscape' to Deter China from Attacking Taiwan," *The Washington Post*, June 10, 2024, https://www.washingtonpost.com/opinions/2024/06/10/taiwan-china-hellscape-military-plan/.
[44] Rogin, "Opinion | The U.S. Military Plans a 'Hellscape' to Deter China from Attacking Taiwan."
[45] Grady, "'Hellscape' Swarms Could Be a Cost-Effective Taiwan Defense, Says Report."
[46] Gen David H. Berger, ADM Karl L. Schultz, "Advantage at Sea: Prevailing with Integrated All Domain Naval Power," 25, accessed February 24, 2025, https://www.hqmc.marines.mil/Portals/134/Docs/TriServiceStrategy.pdf.

power and effects at the time and place of choosing."[47] This idea falls in line with the "hellscape" plan, considering the need to preposition systems and continue resupplying to maintain the pressure for up to one month.[48]

The US recently published a report on several types and sizes of unmanned surface and undersea vehicles to be procured in 2025, further indicating the direction the USN is taking on that matter.[49] In fact, those vessels could include both crewed and uncrewed versions in order to fulfill the mandates of distributed operations by adding more firepower in theatre while not automatically increasing the risk of loss of life in the case of uncrewed vessels.[50] Perhaps the supply lines to keep these vessels in the fight are where the RCN can find its place in the conflict by bringing the needed supplies and ammunition to maintain forward presence as much as possible as the drones can operate on their own after leaving the pier.[51]

The possible involvement of RCN assets in these supply chains is developing as a niche capability and one of the few areas where it can contribute to a coalition. Before moving forward, an opportunity for Canada worth mentioning regards production of uncrewed vessels. The Canadian government launched its National Shipbuilding Strategy (NSS) over a decade ago with the intent of seizing domestic opportunities as well as looking outside for export opportunities.[52] The NSS 2021 report showed encouraging signs as it discussed several projects and builds underway resulting in ships now being at sea out of Canadian Shipyards while

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[47] Gen David H. Berger, ADM Karl L. Schultz, "Advantage at Sea: Prevailing with Integrated All Domain Naval Power," 25.
[48] Rogin, "Opinion | The U.S. Military Plans a 'Hellscape' to Deter China from Attacking Taiwan."
[49] "Navy Large Unmanned Surface and Undersea Vehicles: Background and Issues for Congress," legislation, accessed May 1, 2025, https://www.congress.gov/crs-product/R45757.
[50] "Navy Large Unmanned Surface and Undersea Vehicles."
[51] "Navy Large Unmanned Surface and Undersea Vehicles."
[52] Innovation Government of Canada, "Focusing on Opportunities - Shipbuilding and Industrial Marine" (Innovation, Science and Economic Development Canada, January 1, 2001), https://ised-isde.canada.ca/site/shipbuilding-industrial-marine/en/focusing-opportunities.

challenges still need to be further addressed to increase productivity.[53] Could the lessons learned through NSS then be applied as part of Canada's contribution to future war in the Pacific? Considering the logistical needs of DMO and the US "hellscape" plan, Canada could increase the number of uncrewed vessels produced, and, therefore increase the role it would play with its small-sized aging fleet. The RCN's contribution to this effort would then be similar to the role it plays in its current fleet modernization which is mainly completed from shore but still has a significant effect.

Repeating the history in support of a war effort

Maintaining supply lines in support of combat effort is not a concept as new as drone warfare and this is something the RCN has done extensively during the Battle of the Atlantic eighty years ago and also in the Pacific at the end of the Second World War against Japan. To understand how the RCN can help the US as the leader of the coalition, the findings of a report from the RAND Corporation looking at naval logistics suggest significant challenges related to supply chains make it difficult to support the concept of DMO.[54] The report points out that the current focus on today's issues is making it even more challenging to attempt to address future issues because current estimates have, so far, failed to account for DMO requirements with an appropriate level of accuracy to be effective.[55] Furthermore, and perhaps even more concerning, is the expectation that even if the USN was to fix its own supply line issues, the industrial

[53] Public Services and Procurement Canada, "2021 Annual Report: Canada's National Shipbuilding Strategy," program descriptions, December 10, 2024, https://www.canada.ca/en/public-services-procurement/services/acquisitions/defence-marine/national-shipbuilding-strategy/reports/2021-annual.html.
[54] Joslyn Fleming et al., "Naval Logistics in Contested Environments: Examination of Stockpiles and Industrial Base Issues" (Rand Corp, March 6, 2024), https://www.proquest.com/docview/3042961233/abstract?_oafollow=false&pq-origsite=summon&parentSessionId=RG6LcyBbdGhtG5eJUQCnIBU9Y3IXuGKe5p63ZrsbYzE%3D&sourcetype=Reports.
[55] Fleming et al., "Naval Logistics in Contested Environments," 43.

complex would be challenged to meet the Navy's demands.[56] Keeping the focus on what the navies are able to fix, once again, it matters to ask what it is the RCN would be able to do?

It has already been established that the RCN will need to stay away from the high-missile threat environment. Coastal surveillance and supply lines defense are two areas where Canadian ships and submarines could be useful. The frigates with embarked helicopters would be better suited to protect lines of communication against surface and submarine threats in support of maintaining the supply of drones needed to sustain the "hellscape" amongst other much-needed supplies.[57] The RCN also operates the *Harry Dewolf*-class Arctic and Offshore Patrol Vessel (AOPV). AOPVs may not be the first class of ships expected to join the war effort as they are limited in the weapons they carry; however, versatility and size could offer interesting opportunities.

While AOPVs are not designed for the full spectrum of naval combat, they could, following some retrofitting, deliver contributing effects perhaps. Their ability to embark a helicopter would certainly offer interesting options, including anti-submarine capabilities.[58] Their size and ability to operate anywhere in the world would also provide surveillance capabilities and possible early warning of threats bound for North America.[59] Canadian submarines, if not employed in the conditions previously discussed, could also play a contributing role to the logistical lines further away from high-end combat. Simply used in their traditional role near the coast of North America, they would offer a natural surveillance platform.

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[56] Fleming et al., "Naval Logistics in Contested Environments," 43.
[57] "Halifax Class," December 4, 2024, https://www.canada.ca/en/navy/corporate/fleet-units/surface/halifax-class.html.
[58] "Harry DeWolf Class," March 15, 2023, https://www.canada.ca/en/navy/corporate/fleet-units/surface/harry-dewolf-class.html.
[59] "Harry DeWolf Class."

Along the Sea Lines of Communications (SLOC) they bolster protecting assets responsible to ensure supplies reach the frontline.

The last class of ship that must be included in the RCN's capabilities to support high-end combat operations in the Pacific is the soon-to-come Joint Support Ship (JSS). While acknowledging that this paper focuses on the current fleet, the first JSS is expected to be fully operational in 2028.[60] Considering China's plan to be militarily ready for an invasion of Taiwan in 2027, as suggested by US intelligence, JSS is being included as part of the current fleet.[61] The importance of naval supply ships cannot be underestimated especially with SLOCs stretching across the Pacific Ocean. JSS adds key capabilities to naval operations through support of replenishment which is a key part of maintaining ships at sea and therefore combat power effectiveness.[62] Adding to the already important role of keeping ships at sea, the expected, although limited, sealift capability of JSS is worth noting.[63] This capability, under the principles of DMO, provides added capacity to bring cargo along the SLOCs toward the frontline.

Considering expected difficulties with maintaining stockpiles, any added cargo brought into theatre contributes to mitigating these challenges. The roles the RCN will play are more traditional and fall in line with the North Atlantic Treaty Organization (NATO) key concept of interoperability, enabling objectives through a coherent and efficient way of operating in consort.[64] Understanding this conflict will not take place in NATO's traditional area, there is no

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[60] National Defence, "Joint Support Ship (JSS)," education and awareness, March 13, 2013, https://www.canada.ca/en/department-national-defence/services/procurement/joint-support-ship.html.
[61] "China's Military Buildup Threatens Indo-Pacific Region Security," U.S. Department of Defense, accessed April 30, 2025, https://www.defense.gov/News/News-Stories/Article/Article/4150802/chinas-military-buildup-threatens-indo-pacific-region-security/https%3A%2F%2Fwww.defense.gov%2FNews%2FNews-Stories%2FArticle%2FArticle%2F4150802%2Fchinas-military-buildup-threatens-indo-pacific-region-security%2F.
[62] "NATO's Navies at 75: Five Operational Imperatives to Watch," U.S. Naval Institute, April 2, 2024, https://www.usni.org/magazines/proceedings/2024/april/natos-navies-75-five-operational-imperatives-watch.
[63] Defence, "Joint Support Ship (JSS)."
[64] "Federated Interoperability," NATO's ACT, accessed May 1, 2025, https://www.act.nato.int/activities/federated-interoperability/.

assumption that all of NATO will take part, of course, but the importance of the concept remains critical in this case regardless of the coalition partners involved. Naval interoperability has been and will likely continue to be one way the RCN and ultimately Canada can make the best out of its status as a middle power nation.[65] The fact remains that while filling those traditional yet imperative roles, the RCN would be limited to areas away from high threat and closer to North America. Without a significant size increase, the RCN cannot afford losing assets and its aging fleet lacks modern capabilities to be effective in high-end combat, therefore reducing its survivability. These challenges leave the RCN's role limited to supply lines support, similar to its historical involvement in other conflicts. Attempts to push towards greater threat environment, resulting in attritional losses, would leave Canada's coastline defenseless and force the country to rely on its allies to defend it.

A counter-argument could be linked to the time factor of when this conflict will start. Of course, confirmation as to when an invasion occurs or intelligence suggesting it is imminent will be a determining factor. This counter-argument would suggest that a conflict starting late in the 2030s allows for a greater RCN role through the RCDs and perhaps the development of drones involved in the "hellscape" month. The premise that the conflict would begin around 2027 is used for planning purposes, so as to have a departure point, but it is not denying that the RCN benefits materially from a later start of the conflict. However, China will also have more and better ships, missiles, drones and submarines by the 2030s. While significant projects are underway and expected to deliver in the 2030s, the RCN will have increased capabilities and put them to best use in a coalition. The fact is that the RCN can only plan with the assets it currently has with a higher level of confidence, while it will welcome and employ to the best of its

[65] "Naval Interoperability" (Naval Association of Canada, October 2024), https://www.navalassoc.ca/wp-content/uploads/2024/11/BN-Interoperability.pdf.

capacity any added assets in the future. Furthermore, newer platforms being delivered may affect how and where the RCN can fight but they may still be used up quickly in attritional naval warfare. Improved capabilities do not guarantee survivability as proven by the expected USN losses in the early stages of the war.[66] Loosing RCDs will, furthermore, have an impact as significant, if not greater, as the sinking of HCS as both scenarios leave Canada's three maritime flanks completely undefended. It would be ill-advised to forward deployed most of the RCN's fleet leaving the coasts at the mercy of enemy forces or for allied forces to protect.

Conclusion

In any anticipated conflict between China and the United States, the RCN would likely contribute to an Allied effort in the Pacific Ocean. The RCN's aging fleet and combat limitations against a superior adversary would largely relegate any contribution to a conflict with China across the Pacific to logistical and patrol functions away from the high-end combat zone in service to a larger coalition fleet. The number and volume of modern missiles China has developed will, in all likelihood, prevent the current fleet from proceeding anywhere near the combat zone until expended and both sides have exhausted reserves of uncrewed assets. The overall threat and lack of capabilities to match them therefore relegates the RCN to the support of logistical lines, until its fleet's modernization completes, which still remains a critical aspect of the war. Nonetheless, the RCN not being able to enter the high-end combat areas does not mean it will not have a significant role in maintaining combat power.

As time progresses and should the conflict start later or last longer, new capabilities the RCD brings to the table will play an increasingly important role. These new ships will increase the RCN's lethality and enable pushing the concept of interoperability to a new level. The shared

[66] Cancian, Cancian, and Heginbotham, "The First Battle of the Next War Wargaming a Chinese Invasion of Taiwan," 88.

technology with other nations and highly capable warships enable the concept that the RCN has been working on with its allies known as interchangeability.[67] The impact of interchangeability and the role the RCN will take once it receives its destroyers remains to be seen and could, perhaps, be part of the next series of wargaming should the conflict not begin in 2027. Although RCDs will pave the way for greater involvement in the war, they will not change the role the RCN can play without a significant increase in the number of ships; requiring an increase in shipbuilding productivity and mobilization in Canada.

[67] Dr Lee Willett, "Type 26 Frigate Promises Naval Interchangeability," Armada International, January 26, 2023, https://www.armadainternational.com/2023/01/type-26-frigate-promises-naval-interchangeability/.

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