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RCN LITTORAL CAPABILITY REPLACEMENTS: GOOD ENOUGH IS NOT GOOD ENOUGH

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RCN LITTORAL CAPABILITY REPLACEMENTS

AIM

1. In order to balance the Canada First Defence Strategy (CFDS) and other strategic directives with the financial constraints under which the modern Canadian Armed Forces (CAF) operates, the Royal Canadian Navy (RCN) must create and maintain a credible capability for littoral and national waters defence. This capability must be flexible, useful in times of conflict as well as peace in order to maximize cost benefits, and may redefine traditional RCN force mixtures that have been considered inviolate throughout its recent history.

INTRODUCTION

2. Several key factors will continue to drive the RCN's procurement requirements. These extend from basic truths such as Canada's expansive coastal waters and river systems to complex realities such as the Joint Interagency Military and Public (JIMP) environment which governs modern warfare theory. A comprehensive evaluation of these factors must be carried out, fully impartial from the current force mixture to ensure the RCN is meeting the needs of future operations.

3. In general, one assessment regarding the nature of expeditionary operations is that it differs significantly from the common domestic operations. Where deployment overseas requires a robust, multi-purpose major warship capable of extended operations away from support as well as integration into a task force as a principle warfare asset, domestic operations tend to require nimbleness, speed, a critical mass of numbers in order to reach Canada's remote geographical regions on a routine basis, as well as the ability to meet a variety of constabulary roles all conducted relatively near to national facilities capable assisting in transition between missions

outfits. Accepting that major warships must continue to carry out the former mission type, the latter will be the focus of this discussion.

DISCUSSION

Merging with the CFDS

4. The standing mission direction within the CAF is explicitly stated in the Canada First Defence Strategy (CFDS):

> "1. Conduct daily domestic and continental operations, including in the Arctic and through NORAD;
> 2. Support civilian authorities during a crisis in Canada such as a natural disaster;
> 3. Support a major international event in Canada, such as the 2010 Olympics;
> 4. Lead and/or conduct a major international operation for an extended period;
> 5. Respond to a major terrorist attack; and
> 6. Deploy forces in response to crises elsewhere in the world for shorter periods."[1]

5. Of these directives, the first three are inherently domestic, with the final three also having a North American element, even if they have an expeditionary component. It remains "clear that a greater emphasis must be placed on the defence of Canada and North America than in the past"[2], growing a navy whose primary duties revolve around national sovereignty rather than as a fortunate after effect. Senior Navy Leadership, with Vice Admiral Madison as its voice, confirms this issue will not fade, indicating the RCN must "maintain an even more vigilant watch over our own waters and…stand ready to respond to aggression in all its forms, from piracy to terrorism."[3]

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[1] Canada. Department of National Defence. "*Canada First Defence Strategy*.": Page 10
[2] Canada. Department of National Defence. "*Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*". Ottawa, ON: Chief of the Maritime Staff, 2005: Page 14
[3] Royal Canadian Navy. "*What the Admiral Said: The Business of the RCN.*": Page 10

6. Even though "MDA (maritime domain awareness) has become a huge element of homeland security"[4], the simple truth is that resilient, consistent vigilance does not fit the modern concept of 'sexy', which is to say not able to make headlines. However, strength in the MDA domain can open doors for international cooperation. Not only would Canada aid in its own national defence, but the ability to produce real-time, true coastal coverage to add to the MDA picture will bolster our partnerships with other nations looking to track Vessels of Interest (VOI), and in return would be more willing to share sources and information regarding in-bound threats to Canada.

7. Other analysts argue that the "best the navy can do is continue to connect with Canadians as much as possible, keep a high and positive public profile…and work away quietly with the other maritime and industrial interests in the country."[5] Knowing that a navy is present, meeting the 'Fleet in Being' aspect of Navy doctrine, can produce positive effects. However, sufficient numbers must exist to make that presence known. Many Canadians, even those living in coastal Canada, have little idea of what the RCN does, and have never witnessed a navy ship's visit. Increasing the number of smaller ships that can make those connections in smaller communities, including up rivers and other waterways, will augment that effect. While not 'sexy', this impact could be even more effective in the long-term.

8. Of significant concern is warning times. Be it a threat from conventional forces or an asymmetric threat, there "will no longer be a long lead-time or a gradual escalation of events that will permit measured and deliberate planning, preparation, training, and force generation…rapid

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[4] Sam J. Tangredi. "The Future of Maritime Power." In *The Politics of Maritime Power*, edited by Andrew T.H. Tan. London, UK: Routledge 2007: Page 142

[5] Dr. Marc Milner, PHD. "Whither the Navy? A Hard Look at the Future of the Canadian Navy." In *Maritime Security in the Twenty-First Century*. Edited by Edward L. Tummers. Halifax: Dalhousie University, 2000: Page 128

reaction forces will need to be maintained."[6] The RCN must consider the requirement for sufficient numbers of ships, placed well, with speed to fill the gaps, and rapidly scalable if given the chance in order to meet a larger aggressor force.

Why not more Frigates?

9. Major warships are chosen or built to a "general-purpose design of frigates and destroyers offer[ing] governments a very wide range of options when choosing how to respond to an international crisis"[7] while also having the "ability to operate autonomously for extended periods."[8] As such, they are a credible, desirable answer to force projection overseas without focusing on any specific niche capability. Certainly, no arguments within this paper would pursue a course by which this capability should be subsumed completely.

10. However, major warships are often overqualified or fully unsuited for domestic operations. These include sovereignty patrols, anti-narcotic operations, monitoring of merchant transportation, long-range surveillance, and junior officer and NCO command appointments to augment their abilities prior to major warship command.

11. Rather than gapping, minimizing or "cutting core military capabilities, the better alternative is to decide [to focus on]…creating and sustaining these core capabilities effectively and economically…getting the most core capability from each defence dollar."[9] This indicates a need for "maintaining sufficient capability to perform domestic tasks (disaster relief, sovereignty surveillance) independently and effectively with a wide and appropriate range of force

[6] Canada. Department of National Defence. "*Securing Canada's Ocean Frontiers…*": Page 13.
[7] Royal Canadian Navy. "The Role of Canada's Major Warships.": Page 3
[8] Ibid.
[9] Douglas L. Bland. "An Alternative Future." In *Canada Without Armed Forces?*, edited by Douglas L. Bland. London, Ontario: McGill University Press, 2004: Page 116

options."[10] In other words, leave expeditionary operations to major units without the need to keep them also ready for domestic sovereignty operations. This would also free their designs, allowing future ships such as the Canadian Surface Combatant (CSC) to be developed for what they can offer the world, leaving local protection to a different class. Financially, this may require a reevaluation of required numbers of expeditionary class units, freeing up capital and personnel for production and manning of local units in greater numbers.

12. The authors of "Globalization and Surface Warfare" express it well in saying "there are more aspects to the surface fleet than cruiser/destroyer-type" and that if "the need for interdiction/sea lane security is increasing, it would seem logical to also assign amphibious warships, the remaining fleet of patrol combatants, and the future LCSs to these tasks" as "ocean, coastal and riverine surface transportation…increase[s] in volume and value."[11] Frigates are simply too large and arguably too important; they are better utilized on higher profile missions.

Are AOPS the Final Answer?

13. The Arctic Offshore Patrol Ship (AOPS) will certainly fill a required need, specifically the projection of Canadian authority into northern waters for a greater part of the year. They will also be "necessary to develop and implement a means of ensuring a coordinated 'whole-of-government' [WOG] response"[12] in operations, purpose built to interact with the Department of Public Safety in terms of Emergency Preparedness or with the Department Of Fisheries and Oceans on patrols.

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[10] Ray Szeto. "*Strategy 2020 and the Future of DND/CF*." Calgary, Alberta: The University of Calgary, 2004: Page 64

[11] Norman Friedman, James S. O'Brasky, and Sam J. Tangredi. "Globalization and Surface Warfare." In *Globalization and Maritime Power*, edited by Sam J. Tangredi. Washington, DC: Institute for National Strategic Studies, 2002: Pages 4-5

[12] Canada. Department of National Defence. "*Securing Canada's Ocean Frontiers…*": Page 6

14. They also carry some significant weaknesses. Immediately significant is that AOPS are relatively lightly armed. While the primary weapon would intimidate merchant traffic, drug traffickers, and fishermen, it is not sufficient as a credible threat in any coastal defence against a warship of even outdated design. While the likelihood of facing such an enemy might be low, the CFDS does not leave the option of abandoning the ability to defend Canada's shore, and the AOPS is unable to accomplish this role, even in greater numbers.

15. Scalability is also an issue. The AOPS is a multi-purpose platform with a hardened hull. Ingress of an asymmetric threat may occur in isolated areas, with very little warning. The problem can be solved by numbers or speed, and the AOPS has neither. With a limited speed and an expensive price tag, AOPS is a strong platform for specific, JIMP oriented cooperation missions in northern regions, but is neither scalable nor cost-effective to operate in times of peace when numbers of ships and personnel become more difficult to justify.

Current Capability – The MCDV

16. The current littoral and coastal role is filled by the Maritime Coastal Defence Vessels (MCDVs). These platforms are insufficient to meet all the challenges of this environment, often forced to conduct operations 'as best as they can' rather than being purpose built and utilized as intended. They have specific shortcomings, most notably in seaworthiness, armament, speed, and communication suites which make them less than ideal as the future of the littoral environment. Their successes over the two decades since their inception should be rightfully credited to the sailors who have adapted their procedures in spite of their platform, not enabled by it.

17. Despite their challenges, the MCDVs do offer some important positive lessons to take forward. One of the strongest is the difference between multi-purpose and modularity. Frigates

are multi-purpose due to their need to meet expeditionary challenges they might encounter, while AOPS are multi-purpose so as to meet a broad array of demands from domestic WOG agencies. This also drastically increases the cost of such units. MCDVs have been significantly enhanced by the ability to create service packages which can be mounted onto any of the ships in the class. On a theoretical coastal, corvette sized vessel, it would be cost-effective to develop similar packages to include SAR, active defence (HARPOON or Torpedo strike packages), control of Underwater Unmanned Vehicles (UUV) to retain anti-mine and survey capabilities, and others as the future may demand. This would then give a broad task array while keeping the initial and maintenance cost of the platform low.

18. One of the inherent requirements to the AOPs was the ability to land a maritime helicopter. Given their role of potential humanitarian assistance and similar duties, this makes sense. However, the MCDVs did not have this capability, and were still widely employed. This does not even consider alternatives, such as giving a new theoretical ship a limited Helicopter In-Flight Refueling (HIFR) capability, offering even smaller ships the ability to act as a waypoint to extend a helicopter's range without being an actual landing point.

<u>What Qualities should this littoral combatant have?</u>

19. Several other nations have developed littoral assets, though by no means unanimous in their approach. Certain qualities remain similar across the classes, from the proven *Visby* corvette in Sweden to the new Littoral Combat Ships (LCS) being developed in the United States, and even the older patrol ships under review that have patrolled Australia's Great Barrier Reef for decades.

20. Speed is an inevitable element, given the need to intercept to engage for either destruction or inspection a civilian craft or enemy craft of widely varied design.

21. Second, it must be a multi-mission vessel that can be easily refreshed and reconfigured. As noted above in the MCDV section, this can be achieved through modularity, since these vessels are intended to operate within proximity to ports at which they can have their payloads exchanged for alternative missions.

22. They must have communication and sensor systems that are capable of integrating with others within the fleet, and able to utilize force multipliers such as embarking unmanned vehicles.

23. They must cost a small fraction of a major warship, and be manned by a similar fraction of personnel so as to allow a proliferation of numbers, expanding the fleet to cover long and complicated coastlines.

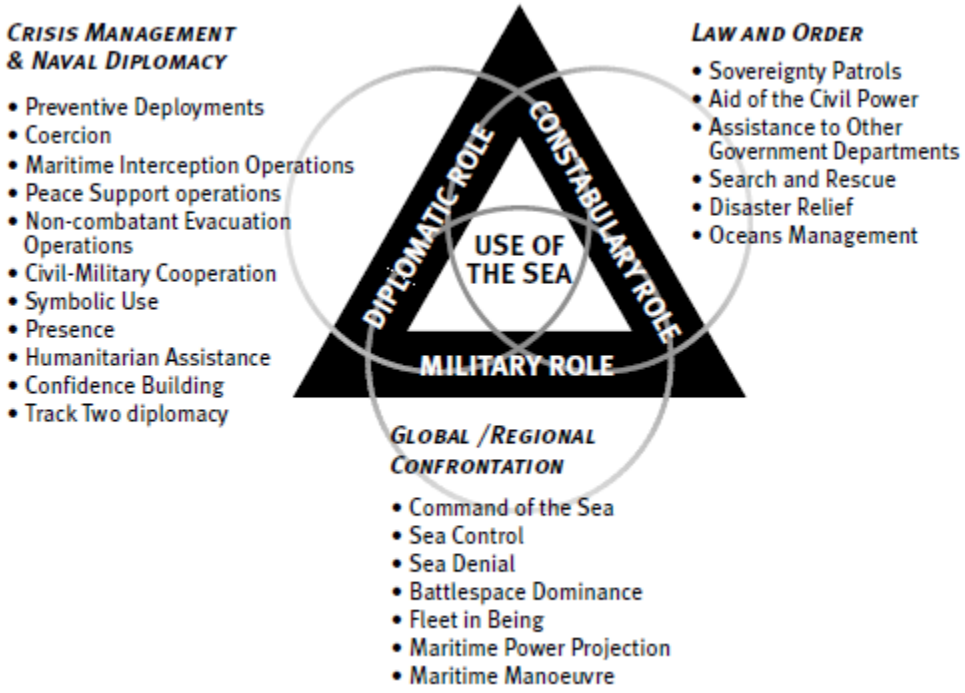
24. In short, the littoral class of ship should be "expected to bridge the gap between Blue water and brown water, by operating in green water (coastal waters)…the region in which maritime transit of terrorists and their weapons is likely to occur."[13]

CONCLUSIONS

25. Taking the above analysis, it can be superimposed with the range of tasks given in *Leadmark 2020* to allow an assessment of the RCN fleet force mixture. The model from *Leadmark 2020* is shown in figure 1:

[13] Sam J. Tangredi. "The Future of Maritime Power." In *The Politics of Maritime Power*…: Page 140.

Figure 1: The Role of Navies (Leadmark Model)[14]



26. From this, the matrix in Figure 2 is developed, using an enhanced stop-light assessment of each relevant platform's ability to meet the pertinent challenges. Note, this evaluation was done using each platform's ability to meet the need as well as the cost effectiveness using that platform for the aim. As stated above, only domestic / continental missions were considered:

Figure 2: Assessment of Platform Response to Leadmark Roles

	Major Warship	AOPS (Large Patrol Ship)	MCDV	Theoretical Light Patrol Ship
Preventative Deployment	Effective if Target known	Effective if Target known	Not threatening	Effective if Target known
Coercion	Powerful Unit	Against Unarmed Opponent, yes	Poorly Armed Outdated technology	Modular Weapon outfit possible
MIO	If Target known, with lead time	If Target known, with lead time	Only with embarked support	Very strong, sufficient #'s easier

[14] Canada. Department of National Defence. *Leadmark: The Navy's Strategy for 2020.* Ottawa, ON: Chief of the Maritime Staff, 2001: Figure 5, Page 34.

				to build
PSO	Overkill for what is required	Good interface as Support Platform		Not intended for deployable support
NEO	Possible, better to use a Supply Ship	Possible, Better to use a supply ship	Small scale local only	Small Scale Only
CIMIC	Can, though equipment not able to purpose-built interface	Can, though equipment not able to purpose-built interface	Modules for Research, etc	Modules for Research, etc
Symbolic Use	Home Port visits, etc	Home Port visits, etc	Home Port visits, etc	Home Port visits, etc
Presence Ops	Yes, but not continual	Yes, but not continual	Slow, Not powerful but they can be there	Can be produced in sufficient #'s to be continual across Canadian Waters
Humanitarian Assistance	Possible, but better to use a supply ship	Possible, but better to use a supply ship	Small scale only	Small scale only
Confidence Building	Possible, but waste of major platform	Possible, but waste of major platform	Good Training, junior command	Good junior Command with significant responsibility
Track Two Diplomacy	Good for showing off, but waste of resources	Purpose built for such cooperation	Good inter-cooperation reputation	Still impressive, not as big a waste
Sovereignty Patrols	Can, but few # and often / better roled to Expeditionary	Good use, but very few, expensive to build enough	Good, but still not many, and very slow	Can be built in larger numbers, fast, purpose built for this
Aid to the Civil Power	Armed enough if required	Armed enough if required	Too Poorly Armed	Armed enough if required
Aid to OGD	Can, but often too few for dedicated availability (MCDV often is the Ready Duty Ship)	Purpose Built	Often Ad hoc. However Modules could be created to aid as needed	Modules can be created to be available, widely dispersed as needed.
SAR	Fast, good platform, but too few for pre-positioning, brings a Helicopter	Purpose built to achieve better SAR reach in Arctic, but still too few and expensive, brings	Local support only, too slow to make a difference most often	Fast, nimble, pre-positioning: Doesn't bring Helo, but can have SAR pack and HIFR capability to extend search Helo

		a Helo		
Disaster Relief	Possible, but better to use a supply ship	Possible, but better to use a supply ship	Only on a small scale	Only on a small scale
Oceans Management	Excellent for Fishery Patrol, but huge waste of resources, also few often roled for bigger tasks (MCDVs take this as often as they can)	Built for Fishery Patrols, but few in number to patrol year round	Built poorly for sea-worthiness, but they can do it if pressed	Smaller ship can be built to go into heavier waters, numbers allows year-round patrol, can also patrol rivers and other waterways easily
Command of The Sea	Well armed, but few	Too Few, not armed for full combat	Poorly Armed, slow, no EW capabilities for integration	Significant Numbers, fast, module to heavily arm them
Sea Control	Well armed, but few	Not armed for Sea control	Not armed for Sea control.	Able for wide enough distribution to work at Sea Control locally
Sea Denial	Good deterrence	Can deny to weak / unarmed dissidents	Not suited to denying areas, but can dissuade some unarmed, smuggling class opponents	Yes, good deterence
Battlespace Dominance	Yes, modern and powerful enough, yet few to repel significant attack	Not suited for large scale conflict	Not suited to large scale conflict	Purpose built to be able to be armed and respond with enough numbers to hit above weight
Fleet in Being	Yes	Not meant for power projection, but against small threat, yes	Low level threat only	Yes
Maritime Power Project.	Yes	Small Threats only	Very Small threats only	Yes
Maritime Manoeuvre	Fast, few, but able to do multiple tasks	Not Fast, few numbers, but able to do multiple tasks on scene	Slow, moderate numbers, but can do multiple tasks on scene	Fast, has numbers, quickly repurposed but does need re-fitting with new modules for various tasks.

Legend:

	Incapable of Meeting Task
	Unsuited to Meeting Task, Significant waste if tasked
	Marginal Task Completion, Ill-matched / Ad Hoc Success
	Well Suited, but with lingering deficiencies
	Purpose Built to Task

27. Without assigning weights to the relative tasks, a suitable task for a follow-on research project in cooperation with political public servants who can set specific, current national priorities, a mathematical evaluation of this analysis cannot be conducted.

28. However, several trends are common throughout, and serve to highlight important conclusions. First, while major warships are capable, they are few in number, and often promised to other, normally expeditionary tasks. In recent years, MCDVs have been increasingly tasked with Caribbean deployments, fishery patrols, and Ready Duty Ship (RDS) assignments due to the lack of major warship availability. As well, if current plans hold true to equip and make available a Canadian Task Group for overseas deployment, such a deployment would strip the coastal waters of its domestic defence if we rely primarily on the major warship fleet to conduct both tasks.

29. AOPS have similar issues, and also share the problem of cost. Like major warships, AOPS cannot be rapidly or even realistically expanded to a large fleet, monetarily or due to manning issues. What is more, the AOPS was not designed as a combatant ship, but rather focused on WOG and small scale military responses.

30. The tasks which have been assigned to the MCDVs rightfully fell on this corvette / coastal defence sized vessel. Even these ships, lacking many capabilities and with significant design flaws, have still made a strong impact, noticed on the diplomatic and military fronts.

Their successes should not be used as a means to prolong them, but as an argument to show how effective a new class, purpose built to conduct coastal missions, could be.

RECOMMENDATION

31. There should be no life extension on the MCDV. Whatever monetary reimbursement can be achieved through paying them off can offset the cost of their replacement. They fail in the meeting the goal listed in their name, that of coastal defence. The success they have achieved in due more to the ingenuity and perseverance of their crews than the platform should not be arguments to retain them.

32. The AOPS capability should be preserved, fulfilling the “Arctic” and “offshore” portion of its name. However, given its lack of robust defence capability and the hefty price tag, the fleet should be maintained at the initial level, more than enough to respond to WOG requirements and the few, longer-term domestic, constabulary deployments up north and south into the Caribbean.

33. The fleet’s major warships should be refocused to a purely expeditionary role. Deploying a single task group of RCN assets would be sufficient to meet Canada’s international commitments. Scaling back to one such fleet instead of two would alleviate the financial difficulties of upkeep of the RCN. Future development of the CSC project should focus on them as an expeditionary, deployable asset alone.

34. Priority should be given to the development, purchase, or other-means acquisition of a fast, nimble, modular littoral class vessel intended to operate in relatively close proximity to Canadian shores, able to proceed offshore in moderate seas. This class should be deployed in sufficient numbers to be visible throughout Canadian waters, and based at Canadian Force Stations (CFS) in smaller communities to increase awareness of the RCN’s activities while also

conducting ongoing MDA and patrol missions, and pre-positioned to counter even unanticipated naval-based threats.

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