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AREA AIR DEFENCE CAPABILITY OF THE ROYAL CANADIAN NAVY AND THE ROLE OF THE RCAF

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AIM

1. In order to be general purpose combat capable, the Royal Canadian Navy (RCN) must maintain an Area Air Defence (AAD) capability. The purpose of this paper is to outline how Royal Canadian Air Force (RCAF) manning of Maritime Fighter Controllers (MFCs) is integral to supporting this capability for the RCN. Currently RCAF manning of Maritime Fighter Controller (MFC) positions in Canadian Fleet Atlantic (CFL) and Pacific (CFP) is set at a priority six (6), threatening the loss of the AAD capability in both the short and long terms[1]. This paper will review recent issues that have threatened the loss of the AAD capability for the RCN through MFC manning and suggest a way forward through an increased manning priority for the position by the RCAF.

INTRODUCTION

2. MFCs are a specialization within the Aerospace Controller (AEC) trade. The RCAF currently provides personnel in support of positions in both CFL and CFP as well as in Air Component Coordination Element – Pacific (ACCE-P). There are presently a total of four (4) MFC positions between the RCAF and RCN: two (2) in CFL, one (1) in CFP, and one (1) in ACCE-P. In recent years the AEC Capability Advisory Group (CAG) in conjunction with the AEC Career Manager (CM) have had issues filling MFC positions in the RCN due to personnel

[1] R.D. Buck. *VCDS Manning Priorities – CLS/CMP HR Distribution APS 06*. National Defence Headquarters, file 5000-1 (DMCS 10357), 22 Jun 06.

shortages within the trade and competition with higher priority postings throughout the RCAF. If not managed carefully, the low priority given to MFC positions in RCN by the RCAF will threaten the loss of an important RCN capability in both the near and long term.

3. This paper will review where the AAD capability is in the RCN today and why it is required. It will also outline the RCAF's role in maintaining this capability through MFC manning and explore some options the RCAF can take to support and maintain the RCN AAD capability.

DISCUSSION

4. HMCS Athabaskan was retired in March 2017, and with her, the RCN's ability to conduct long-range AAD.[2] With the loss of the Iroquois class destroyers, fleet staffs and MFCs were moved to Halifax Class Frigates that had undergone Frigate Life Extension (FELEX) upgrades. Though upgrades and improvements to ship radars were carried out through FELEX, AAD capabilities were reduced to a short to medium-range, leaving the RCN with a capability gap to be addressed through the eventual procurement of the Canadian Surface Combatant (CSC).[3] Perhaps the most apparent drop in AAD capability was the loss of the Standard Missile 2 (SM-2) from the Iroquois class and employment of the Evolved Sea Sparrow Missile (ESSM) on the Halifax Class; The SM-2 has an effective range of approximately 100 Nautical Miles (NM), while the ESSM maintains an effective range of about half of that.[4] Maintaining and

[2] Royal Canadian Navy, "HMCS Athabaskan takes final salute after 44 years of dedicated service," accessed 30 Jan 2018, http://www.navy-marine.forces.gc.ca/en/news-operations/news-view.page?doc=hmcs-athabaskan-takes-final-salute-after-44-years-of-dedicated-service/izkjrve5

[3] Department of National Defence, *Canada in a New Maritime World: Leadmark 2050*, (Ottawa: Royal Canadian Navy, 2016), 40, 49.

[4] Stephen Sanders, *Jane's Fighting Ships 2014-2015*, (Surrey: Coulsdon, 2015), 100,102.

improving upon the RCNs AAD capability is an important contribution to Canada's ability to be "strong at home, secure in North America and engaged in the world."[5]

5. Not since Operation (OP) Friction in 1990 has the RCN engaged a Canadian naval Task Group (TG) into a theatre of operations. During OP Friction, Combat Air Patrols (CAP) flown by CF-18 aircraft were conducted in the Persian Gulf in support of Canadian TG operations in the area.[6] Since then, the RCN has reduced its global engagement to deploying single ships in multinational foreign-led TGs. Operations such as OP Augmentation (1999), OP Mobile (2011) and OP Reassurance (2014) provide good examples of RCN asset employment in a theatre with a large friendly air capability and/or threat present. Due to the lack of AAD capability, Canadian ships on those operations were either employed in reduced air threat areas and not in positions to control Canadian and allied fast-air assets in joint operations.[7] During Op Reassurance, RCN ships were approached on several occasions by Russian fighter aircraft, demonstrating the presence of a potentially hostile air threat, and the need for a Canadian AAD capability. [8]

6. *Strong, Secure and Engaged: Canada's Defence Policy* (SSE) calls for an agile and responsive Navy able to respond to a wide variety of situations globally. SSE speaks to "a fleet

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[5] Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy,* (Ottawa: Department of National Defence, 2017), 6.

[6] Directorate History and Heritage, "Details/Information for Canadian Forces (CF) Operation FRICTION" accessed 30 Jan 2018, http://www.cmp-cpm.forces.gc.ca/dhh-dhp/od-bdo/me-mo/FRICTION-eng.asp

[7] Frontline Defence, "Canada's Role in OP Unified Protector (Libya)" accessed 1 Feb 2018. http://defence.frontline.online/article/2011/4/1913-Canada%E2%80%99s-Role-in-Op-Unified-Protector-%28Libya%29

[8] The Toronto Star, "Russian Planes Buzz Canadian Frigate in the Black Sea" accesses 30 Jan 2018. https://www.thestar.com/news/canada/2014/09/08/russian_planes_buzz_canadian_frigate_in_black_sea.html; The National Post. "Surrounded by Russian Vessels, HMCS Charlottetown 'Unlocked Missiles so they could be fired,' Canadian Sailor Says". Last updated: 2 Feb 2018. http://nationalpost.com/news/canada/navy-commodore-plays-down-canadas-encounter-with-russian-warships

built around an ability to deploy and sustain two Naval Task Groups".[9] The recent introduction of the interim Auxiliary Oil Replenishment (iAOR), Motor Vessel (MV) Asterix, has meant that the RCN has regained the ability to further engage in the world's military affairs by deploying a Canadian Task Group (TG) abroad. However, with the reduced AAD capability on the Halifax class frigates, self defense of the Canadian TG could be brought into question when faced with an air threat. With the current AAD capability, it is unlikely that the RCN would deploy a Canadian-only TG into an air threat area, thus limiting its ability to be "agile and responsive" to a variety situations. It is more likely that the RCN will continue to deploy ships one-at-a-time into international TGs in a low air-threat area in a limited role. SSE also highlights the desire to use RCN assets "to contribute meaningfully to joint action ashore…while preserving the ability to defend its own freedom of action".[10] Without a more robust AAD capability, it is unlikely that Canadian ships alone could provide such freedom of action, nor participate in Joint RCN-RCAF operations in a littoral environment, such as that found in Libya during Op Mobile/Unified Protector, or potentially in the black sea while operating as part of Op Reassurance. The Future Operating Environment (FOE) for the RCN is likely to include an increase in littoral operations in support of joint action ashore while under threat of land-based fighter aircraft.[11] Improved AAD capability in the RCN would enable increased joint operations between RCN and RCAF by allowing an embarked MFC to provide a Defensive Counter-Air (DCA) capability for RCN units through employment of friendly air assets. Increased radar capability and Surface to Air Missile (SAM) engagement envelopes would permit the RCN to participate in more offensive operations

[9] Department of National Defence, *Strong, Secure, Engaged…*, 34.
[10] *Ibid.,* 35.
[11] Department of National Defence, *Canada in a New Maritime World: Leadmark 2050*…, 29.

in a TG setting while enhancing Situational Awareness (SA) and improving defence capabilities for other naval or air units in the Area of Operations (AO). [12]

7. AAD acts as both an operational sense and shield function that can be fit into a joint layered force air defense structure.[13] An Increased AAD capability within the RCN not only enables further more meaningful engagement in conflicts around the world, but can also be used to "contribute to the security of North America" through integration in the NORAD structure.[14] RCN ships positioned several hundred miles off the coast of Canada can extend current shore-based radar horizons well out to sea, and provide an improved Recognized Maritime Picture (RMP) on low-level inbound aircraft otherwise undetectable to shore based facilities.[15] By being able to support the NORAD mission through an improved AAD capability, the RCN can become a value added partner, as indicated in SSE, that can be called upon to aid in the security of North America not only from the sea, but from the air domain as well.[16]

8. The RCN understands that AAD is a capability gap today, and the future CSC should bring the solution to rectifying the problem.[17] In the near term, the RCAF must continue to support the current, though limited, AAD capability of the Halifax class frigates in anticipation of filling the role on the future CSC. If the RCAF allows the MFC trade to atrophy through a low manning priority and a conception that the reduced AAD capability of the RCN does not benefit

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[12] Department of National Defence, *Leadmark: The Navy's Strategy for 2020*, (Ottawa: Directorate of Maritime Strategy, 2001), 19, 150.

[13] *Ibid.*

[14] Department of National Defence, *Strong, Secure, Engaged…*, 34.

[15] Department of National Defence, *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*, (Ottawa: Directorate of Maritime Strategy, 2005), 36.

[16] Department of National Defence, *Strong, Secure, Engaged…,* 14.

[17] Department of National Defence, *Canada in a New Maritime World: Leadmark 2050*…, 49.

the AEC trade, then the RCAF may well be setting the RCN up for a capability loss. If the MFC specialization is not supported fully by the AEC community, under-manning of MFC positions will lead to increased risk acceptance by the RCN and higher future resource investments by the RCAF to re-train MFCs.

9. In recent years, full manning of the four (4) MFC positions in the RCAF and RCN have been at risk due to personnel shortage in the AEC trade. The low VCDS manning priority given to MFC positions has led the AEC CAG and CM to occasionally leave positions vacant. CFL has experienced the brunt of such vacancies leading to an over-reliance on support from CFP and ACCE-P MFCs when faced with exercise planning, or posting-in and training of new MFCs. Under-manning of MFCs in CFL can have operational consequences to the RCN, as CFL staff is a roto-zero deployable unit. When only one MFC position is filled at CFL, the CFP MFC may be required to deploy short notice to fill the gap. There is risk involved in that action, as the CFP and ACCE-P MFCs may be involved in exercises in the Pacific and unable to deploy short notice without serious consequences to their exercise programs. Also, as CFP and ACCE-P are not roto-zero units, there is a risk that those MFCs may not be prepared to deploy without multiple waivers. There is also risk involved in deploying CFL staff with only one MFC, as there are crew-day and crew-rest consideration that must be made. In accordance with the Aerospace Control Management Orders (ACMO), MFC crew day is limited to anywhere between eight (8) and Twelve (12) hrs depending on complexity of the mission being conducted.[18] With only one MFC deployed, the RCN would be unable to effectively monitor and control air missions for anywhere between 12 to 16 hrs per day. Due to the unpredictability of conflict, it would be next

[18] Department of National Defence, B-GA-164-000/AA-001, *Aerospace Control Management Orders (ACMO)*, (Ottawa: DND Canada, 2017), Annex H.

to impossible for the RCN to manage an effective AAD capability with only one MFC embarked. If it is the RCAF's intention to under-man CFL MFC positions, it must me made clear to the RCN that they may be without sufficient MFC manning, affecting their AAD capability in a short-notice-type deployment.

10. CFL and CFP staffs are the workhorses behind RCN exercise planning. In the lead-up to large exercises such as Cutlass Fury (CF-16) and Spartan Warrior (SW-16) in the fall of 2016, MFCs were integral to coordination of airspaces between ACCE-A and NAV Canada. CF-16 saw MFCs working hand in hand with NAV Canada personnel in the creation and de-confliction of new temporary restricted air spaces. MFCs were also key members in de-confliction, coordination and airspace management issues with offshore helicopter operations to commercial oil rigs in RCN operating areas. With fully manned MFC positions in CFL, the RCN was able to conduct 24 hr air and subsurface exercises while providing each MFC with adequate crew rest. The inclusion of two MFCs also enabled the RCN to respond quickly and effectively to a dynamic program as CF-18 and contracted aircraft schedules changed due to weather and maintenance. With only one MFC embarked, the RCN's exercise program would have been at risk of losing the majority of its air exercises as planners would have lacked the flexibility the change programs hour to hour without infringing upon crew day and crew rest requirements of embarked MFCs. Embarked MFCs are key safety personnel in the controlling and monitoring of RCN air defence exercises (ADEX), electronic warfare exercises (EWEX), surface to air fire exercises (FIREX) as they all involve fixed-wing jet aircraft that operate beyond the control capability of RCN Ship Air Controllers (SACs). Day to day fleet operations exercise planning and exercise execution require fully manned MFC positions to enable to RCN to be responsive

and effective. By fully manning MFC positions for exercises, the RCN is able to execute an operational capability through AAD-type missions.

11. MFCs are selected from AEC personnel who are Certified Mission Ready (CMR) with a Weapons Director (WD) qualification, meaning that a portion of the AEC trade is excluded from occupying MFC positions in the RCN.[19] Tower controllers, for example, cannot be selected for MFC positions. Once occupying an MFC role, CFL and CFP Standard Operating Procedures (SOPs) dictate a rigorous training regime that includes ship fitted equipment familiarization, Naval Environmental Training Phase (NETP), and mission profiles specific to the MFC trade through both live and simulated, ship or shore based missions.[20] Depending on aircraft availability (contracted or CF-18), training for an MFC can take anywhere from a few weeks to two months. The time required to train MFCs on an ad-hoc basis would make short notice training of individuals to occupy last minute deploying or supporting positions undesirable an ineffective. Support from the RCAF on such last minute MFC training would not be feasible as it could have follow-on effects to pre-committed air assets flying in support of planned RCAF and Canadian Army (CA) exercises. This would result in large, unplanned expenditures and follow-on effects to CA and RCAF force readiness. Such unplanned activities would not be accounted for in the RCAF Total Air Resource Management (TARM) and could have follow-on effects to asset commitments later in the Fiscal Year. By manning both MFC positions at CFL, predictable training schedules could be planned, and there would be no need for large unplanned resource

[19] Department of National Defence, B-GA-164-000/AA-001, *Aerospace Control…*, Annex AB.

[20] Canadian Fleet Atlantic, "MFC Standard Operating Procedures", (Halifax: F3 Operations, 2017), Chapter 8.

requests to the RCAF. CFL fleet staff could deploy with trained MFCs, and maintain an AAD capability without risk of a personnel shortage and a partial capability loss.

12. The RCAF has several options available to continue to supports the RCN's AAD capability through MFC manning:

a. Increasing the VCDS manning priority for MFC positions from a six (6) to a four (4) may alleviate the manning issues. VCDS priority level 4 sees a 94% manning of the positions, and falls in-line with CFL staff as a deployable roto-zero unit associated to the RCN's high readiness ship.[21] This method is effective, as the cost to fully man MFC positions in the RCN and RCAF is four personnel.

b. 12 Radar Squadron in Bagotville could act as an MFC Pool. CMR WD qualified personnel would be identified and undergo NETP training and equipment familiarization in Halifax. When required, selected personnel would travel to CFL or CFP in support of exercises or operations. One MFC would continue to be posted to CFL, and one to CFP to act as liaison officers to the RCN and respond to daily operations on the coasts. Manning of AEC training positions to a VCDS priority 3 would be met, and AAD capability for the RCN would be maintained. A formal agreement between CFL and 12 Radar Sqn would be required to ensure continued success.

c. Reduce MFC manning to three: one at CFL, one at CFP and one at ACCE-P. This would require a higher risk acceptance by the RCN as it would affect short notice deployments

[21] R.D. Buck. *VCDS Manning Priorities.*

through insufficient manning, and require the loss of the deployable MFC in CFP in a contingency-type situation. This option has the possibility to affect routine operations at CFP during exercise planning and execution.

CONCLUSION

13. AAD is an important capability that the RCN requires. Though AAD is diminished since the retirement of the Iroquois-class destroyers, it still needs to be practiced and supported by the RCAF. If RCAF manning of MFC positions within the RCN is reduced below four (4) personnel, risk acceptance by the RCN will be increased and the ability to conduct AAD-type missions in contingency-type operations will be reduced. Ad-hoc training of additional MFCs to fill the capability gap will be costly, time consuming and will not meet requirements for CFL to deploy on short notice as a roto-zero unit. VCDS manning priorities for MFC positions should be reviewed and changed to fully man MFC positions in the RCN and RCAF.

RECOMMENDATION

14. It is recommended that the RCAF discuss MFC manning issues with the RCN to develop clear path toward maintaining an AAD capability in the RCN. Presently, there seems to be no formal agreement or understanding between the services on MFC manning, and so every posting cycle results in an MFC position at risk of going vacant and horsepower being diverted to justify the requirement.

BIBLIOGRAPHY

Buck, R.D. *VCDS Manning Priorities – CLS/CMP HR Distribution APS 06*. National Defence Headquarters, file 5000-1 (DMCS 10357), 22 Jun 06.

Canada. Department of National Defence. B-GA-164-000/AA-001. *Aerospace Control Management Orders (ACMO)*. Ottawa: DND Canada, 2017.

Canada. Department of National Defence. *Canada in a New Maritime World: Leadmark 2050*. Ottawa: Royal Canadian Navy, 2016.

Canada. Department of National Defence. *Leadmark: The Navy's Strategy for 2020*. Ottawa: Directorate of Maritime Strategy, 2001.

Canada. Department of National Defence. *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*. Ottawa: Directorate of Maritime Strategy, 2005.

Canada. Department of National Defence. *Strong, Secure, Engaged: Canada's Defence Policy* Ottawa: Department of National Defence, 2017.

Canada. House of Commons. *Canada and the Defence of North America: NORAD and Aerial Readiness.* Ottawa: House of Commons, 2016.

Canada. House of Commons. *The Readiness of Canada's Naval Forces*. Ottawa: House of Commons, 2017.

Canada. Office of the Parliamentary Budget Officer. *The Cost of Canada's Surface Combatants.* Ottawa: Office of the Parliamentary Budget Officer, 2017.

Directorate History and Heritage. "Details/Information for Canadian Forces (CF) Operation FRICTION" accessed 30 Jan 2018. http://www.cmp-cpm.forces.gc.ca/dhh-dhp/od-bdo/me-mo/FRICTION-eng.asp

Frontline Defence. "Canada's Role in OP Unified Protector (Libya)" accessed 1 Feb 2018. http://defence.frontline.online/article/2011/4/1913-Canada%E2%80%99s-Role-in-Op-Unified-Protector-%28Libya%29

Royal Canadian Air Force. "12 Radar Squadron" accessed 30 Jan 2018. http://www.rcaf-arc.forces.gc.ca/en/3-wing/12-squadron.page

Royal Canadian Navy. “HMCS Athabaskan takes final salute after 44 years of dedicated service” accessed 30 Jan 2018. http://www.navy-marine.forces.gc.ca/en/news-operations/news-view.page?doc=hmcs-athabaskan-takes-final-salute-after-44-years-of-dedicated-service/izkjrve5

Royal Canadian Navy. Canadian Fleet Atlantic. “MFC Standard Operating Procedures”. Halifax: F3 Operations, 2017.

Sanders, Stephen. *Jane’s Fighting Ships 2014-2015*, Surrey: Coulsdon, 2015.

The National Post. “Surrounded by Russian Vessels, HMCS Charlottetown ‘Unlocked Missiles so they could be fired,’ Canadian Sailor Says”. Last updated: 2 Feb 2018. http://nationalpost.com/news/canada/navy-commodore-plays-down-canadas-encounter-with-russian-warships

The Toronto Star. “Russian Planes Buzz Canadian Frigate in the Black Sea” accesses 30 Jan 2018. https://www.thestar.com/news/canada/2014/09/08/russian_planes_buzz_canadian_frigate_in_black_sea.html