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## PRINCIPAL MARITIME INFORMATION WARFARE COMMANDER

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**JCSP 47**

### Service Paper

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# **PRINCIPAL MARITIME INFORMATION WARFARE COMMANDER**

## **AIM**

1. For nearly the last century Maritime Warfare has been divided into very well established and understood traditional battlespace categorizations. The Principle Warfare Commanders (PWC) who are assigned to each of these domains are the Anti-Submarine Warfare Commander (ASWC); Anti-Surface Warfare Commander (ASuWC); and Anti-Air Warfare Commander (AWWC). However technological development and the emergence of the internet of things have been progressively blurring the lines between these traditional boundaries for the last couple of decades. In response to this, Canada has taken a leading role in the North Atlantic Treaty Organization (NATO) development of an Allied Tactical Publication (ATP) that will establish a new PWC, the Information Warfare Commander (IWC). How can the Royal Canadian Navy (RCN) enterprise transform itself in order to capitalize on both the new capabilities and new organizational structure to deliver effects?

## **INTRODUCTION**

2. Maritime Information Warfare (MIW) is something that the RCN has always coordinated as an independent function in all areas of warfare but was never coordinated under one authority. When considering what the IWC will be addressing it is apparent that there is nothing new except for terminology and the development of new processes and authorities to address the challenges in the new era within the “Information Environment” (IE). The establishment of an IWC aligns those MIW functions under one authority to deliver effects at sea and places them at the centre of planning and execution of those related MIW areas of responsibility and assumes some of the traditional responsibilities held at the Officer in Tactical Command (OTC).

3. Commanders will and are now required to fight in an increasingly complex IE and must consider the application of MIW across the full spectrum of operations. Warfighters need to defend their use of the IE in order to enable the freedom of action and their ability to conduct operations. Technological developments have resulted in the emergence not only a complex IE, but one that is contested by our adversaries and all parties including friendly forces operating within it. The IWC’s mission is to provide that level of integration within the Task Group ensuring Assured Command and Control (C2) is available to all warfighting areas. They must achieve information superiority through the application of MIW procedures and plan to maximize the exploitation of that information and achieve a decision making advantage for authorized military action. The IWC will advise the OTC and other PWCs on the scheme of manoeuvres required to achieve the Full Spectrum of operations. As important as the other PWCs are, absent the ability to dominate the EM environment to deny, deceive or control an adversary’s sensing function, one will never get to the fight undetected, unmolested, with the element of surprise on our side. The IWC uniquely understands the threat and vulnerability equation, it is one that is not nearly as well known by the other traditional PWCs. Accordingly, when used effectively, the IWC has the specialized knowledge to evaluate own force risks from

changes in posture that may unwittingly be created through execution of some of the great plans and tactics that the other WCs devise. The result from the establishment of an IWC should be better shared awareness and synergies with joint and combined operational partners, and a more focused “hybrid warfare” campaign to achieve desired strategic effects at sea.

4. In order for the RCN to be fully prepared to capitalize on MIW, the force development institutions will need to pivot in order to challenge the new problems the integration of an IWC will create. Primarily among those will be the selection and training of personnel to support this new model of warfare. The second aspect will be the acquisition of the technological capabilities that will enable an IWC’s functionality. Finally, as MIW will be critical to combined and joint operations in the littoral battlespace, the RCN must ensure that both the Royal Canadian Air Force (RCAF) and Canadian Army (CA) are aware of the IWC’s existence, understand the new capabilities it brings and be able to capitalize on the increased information integration into the Command decision process within Joint Operations.

## **DISCUSSION**

5. The RCN has much work ahead of it in order to reach initial operating capability for the integration of an IWC as a peer PWC within a Task Group (TG) or Task Force (TF). Currently there is legacy training that is completed for the RCN’s operation room officer (ORO) course so that those graduates can competently support either an ASWC, AWWC or ASuWC as staff. Of these legacy PWCs the tactics are well established and battle tested; the C2 organization is second nature; and the lines of communication are dependable. With the introduction of an IWC, it is necessary to make changes to all of these established norms. With the advent of the IWC, the training institutions within the RCN’s force development enterprise will potentially require a transcendent change. As staff officers that will be supporting an IWC, the ORO training will need to incorporate a significant redesign of the course material in order to ensure a number of items are addressed and incorporated. First of all, the impact of the implementation of an IWC on the other PWC, the C2 structure and areas of warfare must be understood. Once the impact is clearly determined, then the training material must be altered in order to create an effective training program that reflects the new organizational system. And these changes are not only for the ORO course. All of the combat operators and the associated training in the RCN must be reviewed with an eye to determining the changes to the training program required to maximize the incorporation of this new PWC. This means that new tasks must be considered and assigned to a specific trade, and then a training program must be developed in order to prepare sailors for these tasks. The RCN force development enterprise will have to consider the restructuring of Naval Warfare Officer trade progression to include an Information Warfare Director as a new director level course. For the more specialized support tasks and the ORO course, new material must be developed and integrated to address those aspect of MIW like cyber operations, space operations, targeting operations and even information operations. All of which are either non-existent or early development training programs. In order to the RCN’s force development enterprise to effectively accomplish this pivot, direction from high levels of the institution must clearly describe the end state ensuring that the substantial changes to training programs and

structure are in service to the larger goal of being able to create a staff for an IWC. Additionally, as one of the main reasons for NATO's creation of an IWC was to ensure a clear lines of communication and intent between coalition members in MIW operations; all of the force development changes must be considered with a thought to what the RCN's allies are doing. This transformation of some of the course services of the training institutions will require a monumental effort and close observation in order to ensure it remains on track. By effecting these changes the RCN will institutionalize MIW and the production of IW specialist through their career and up to and including the production and designation of an RCN IWC.

6. In hand with the shift in training, there is also needs to be a consideration as to whether the RCN's trade structure, jobs and responsibilities are suited to include the new tasks that an IWC will demand on their staff and a ship's company. The RCN is currently conducting an occupational analysis of all of its four Combat Operator trades for the purpose of restructuring the trades into a single Common Combat Operator. Concurrent to the occupational analysis is the acknowledgment that the RCN currently does not have the tasks identified to an existing trade that will be required to complete the work an IWC will require to be done. Therefore an additional thrust of the force development enterprise will be required in order to define those tasks and ensure that they are incorporated into the definition of the future Common Combat Operator so that the force structure is suited to the support of an IWC and the types of tasks they will require to be completed in the execution of their duties.

7. The RCN is well placed within Canada's capital ship renewal program in order to ensure that the technical capabilities required for MIW operations and the support of an IWC are integral to the future fleet. Chief among the technical capabilities required to enable and IWC's operations are communications capabilities. Operating in a rich information environment, all units will require resilient, robust and secure networks, and information services that have layered levels of redundancy able to support operations in contested environments. This includes Beyond Line of Sight and Line of Sight networks for exchange of information between tactical units and strategic reach back. Success in contested environments that result in denied, degraded, intermittent or limited (DDIL) communications environment requires meshed networking that is resilient to attack. These networks should be self-healing and dynamically able to seamlessly exchange information between force elements. Degradation or loss of any bearer will initiate automatic re-routing; thus users experience limited degradation of services due to an adversary's action. And finally, these networks must be compatible with coalition partners in order to enable MIW operations. In progressing the procurement program tied to Strong, Secure, Engaged (SSE); the RCN's force development enterprise must ensure that the communication network capabilities in the future ships are able to perform as outlined above.

8. With so much information readily available at the operational and tactical level, there will also be a requirement to categorize the useful from the useless information. The success of the IWC will be dependent on their ability to analyze data and implement changes faster than their adversaries, thereby achieving a decision making advantage of authorized military action. In order to be competitive the RCN's force development enterprise should also be aggressively

exploring the possibility for artificial intelligence program capabilities that will assist the operator in the identification and analysis of vast amounts of data in order to identify key pieces critical to an IWC's operations. By ensuring that the RCN has the right capabilities it will ensure that the right information is delivered to the right hands, ready for the commander to make decisive military action by maintaining the ability to observe, orient, decide, and act faster than the adversary thus maintaining that tactical advantage. If achieved, the commander can shape the IE to his advantage, increasing the commander's freedom of manoeuvre while limiting their adversary's.

9. Due to the characteristics of cyber and information warfare; the traditional boundaries between the elements of sea, land and air are becoming less relevant to the conduct of operations. Like the warfare areas of air, sea, land and (more recently) space; technology advancements are inspiring changes in doctrine and how operations are conducted in each of the elements. Unlike the four warfare areas above, the IE and cyber are completely man made. Also, there are no geographical or three dimensional space definitions that contain the effect to one physical location. The impact of MIW and cyber operations will not be contained to a localized area and can reach all of the way from the front lines to the very back end of a state's localized support operation on national soil. Complicating the fact that this new unrestrained (referring to geographical location) capability can effect new and potentially illegitimate targets of war, and the bar for entry is so low that these capabilities to create effect on another sovereign nation is not contained to state actors, but can be employed by criminal organizations, terrorist organizations or even individuals means that all of the traditional boundaries that were useful in categorizing and conflict and determining a response are no longer valid. In order to the RCN enterprise to address this challenge there will need to be a coherent national strategy that coordinates competing efforts so that they become complimentary. And the RCN needs to ensure it is leading the RCAF and CA in the incorporation of Joint IW objectives to create a whole of Forces capable of dominating the IE.

## **CONCLUSION**

10. The RCN has always been successful operating with joint forces, whether it is with Maritime Air, Fast Air or integrating maritime capabilities to support troops ashore. As the RCAF develops more IW capabilities from space based assets or Land based UAVs, the RCN must be ready to support and be supported when missions and tasks are executed. Additionally, support to delivering effects ashore from sea based platforms will also be a key enabler in the overall Strategic and Operational Level Campaign. Therefore, the RCN should strive to maximize the concept of integrated and joint effects into maritime operations in order to further enhance the "Full-spectrum" of operations. This includes maximizing the use of the Joint Targeting Process during "Strike Missions" and "Integrated Fires" as well as the integrations of other "Information Related Capabilities" inherent within maritime forces. The RCN will also ensure the front-end work for this Joint capability is complete by ensuring that the technical readiness is correct through the acquisition of new IW capabilities commensurate with the future fleet. And finally, the RCN force development enterprise must ensure that it is addressing and



personnel training capability deficiencies to ensure its sailors are learning the right skills for the future operating environment and that the RCN has the career progression in place to ensure that an IWC will be produced from its ranks.

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