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## AOPS OPERATING OUTSIDE THE ARCTIC: RECOMMENDATIONS ON EMPLOYING THE HARRY DEWOLFE-CLASS ARCTIC/OFFSHORE PATROL VESSEL BEYOND AN ARCTIC MANDATE

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**JCSP 43**

***Exercise Solo Flight***

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EXERCISE *SOLO FLIGHT* – EXERCICE *SOLO FLIGHT*

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MANDATE**

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## INTRODUCTION

In 2018 the Royal Canadian Navy (RCN) will take delivery of the first *Harry DeWolfe*-class Arctic/Offshore Patrol Vessel (AOPV). This will mark a milestone in the Canadian Government's National Shipbuilding Strategy (NSS) with the first ship to be built for the Canadian government since the late 1990s. The AOPVs will represent a new type of ship for the RCN; a large patrol ship that is capable of operating in and around ice under certain circumstances. The acquisition of the AOPVs into the RCN's fleet was a decision thrust upon the Canadian Armed Forces (CAF) by the Stephen Harper government as part of his Northern Strategy to maintain Canada's sovereignty in the Arctic. However, it is likely that the AOPVs will only be operating in the Arctic for approximately four months a year when they are first introduced to the Fleet based on extensive ice coverage in the North. To maximize the utility of the *Harry DeWolfe*-class ships the other eight months of the year provide an opportunity to employ these ships not just in the Arctic but domestically all over Canada and even globally. The important distinction that the Canadian Government and public should keep in mind when thinking of the AOPVs is that they are Patrol Vessels that can operate in the Arctic; they are not Patrol Vessels that can only operate in the Arctic. This paper will explore what additional tasks the *Harry DeWolfe*-class vessels are capable of taking on as missions beyond what was stated in the original Concept of Employment that was drafted as part of the definition phase of the project to procure the AOPVs.

This paper will display that the capability of the AOPVs provides an asset that the RCN can employ on behalf of the Canadian Government in a range of tasks well beyond just Arctic and domestic employment as a patrol ship. The paper will start by quickly giving a background of the project to provide context, then summarize the confirmed capabilities of the vessel,

provide recommendations on additional tasks that could be added to the Concept of Employment, and will conduct a PRICIE analysis based on these additional tasks that are above and beyond the Arctic employment of these ships. The paper will also conduct an analysis of the AOPVs in the context of employment outside of Canada.

## BACKGROUND

The Arctic and Offshore Patrol Ship (AOPS) project has its firm origins in Stephen Harper's Canada First Defence Strategy of 2008.<sup>1</sup> However, prior to that there was an announcement made by Stephen Harper while still early in his mandate in 2007. Although there had been some earlier statements about purchasing 3 to 4 armed ice breakers what was eventually decided upon was to purchase 6-8 offshore patrol ships that would be capable of operating in the Arctic and have a IMO ice classification of Polar Class 5.<sup>2</sup> Over time the AOPS project matured, the Irving Shipyard was confirmed as the builder via the National Shipbuilding Procurement Strategy (NSPS)<sup>3</sup>, and the design was completed. The final design of the AOPS is similar to the Norwegian Navy's *Svalbard-class* vessel and with that design some of the final costs for the vessel became clear and it was confirmed that the RCN would only have 6 AOPS delivered to keep costs under \$3.5 billion once the project was complete. Additionally, the vessels that will be produced under the AOPS project were designated as the *Harry De Wolfe-class* Arctic/Offshore Patrol Vessels (AOPVs)<sup>4</sup>.

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<sup>1</sup> Canada: DND, Canada First Defence Strategy. (Ottawa: Government of Canada, 2008), 4.

<sup>2</sup> CTV News, "Tories' ambitious defence plan needs more money," 18 Feb 2006.

[http://www.webcitation.org/query?url=http%3A%2F%2Fwww.ctv.ca%2Fservlet%2FArticleNews%2Fmini%2FCTVNews%2F20060218%2Ftory\\_defence\\_plan\\_060218%3Fs\\_name%3Dbeijing2008%26no\\_ads%3D&date=2009-05-09](http://www.webcitation.org/query?url=http%3A%2F%2Fwww.ctv.ca%2Fservlet%2FArticleNews%2Fmini%2FCTVNews%2F20060218%2Ftory_defence_plan_060218%3Fs_name%3Dbeijing2008%26no_ads%3D&date=2009-05-09).

<sup>3</sup> This strategy has since been renamed the National Shipbuilding Strategy (NSS)

<sup>4</sup> Toronto Star, "Arctic issues make for good politics," 10 Jul 2007.

<http://www.webcitation.org/query?url=http%3A%2F%2Fwww.thestar.com%2Farticle%2F234195&date=2009-05-09>.

Construction on the first AOPV (HMCS *Harry DeWolfe*) commenced in March 2016 and Irving Shipyard has also commenced construction on the second ship of class. The first AOPV is scheduled for delivery to the RCN in 2018.<sup>5</sup> The expectation is that the vessel will reach full operational capability in under a year based on being built to civilian standards and not having a robust and complicated combat systems suite that a surface combatant such as a frigate or destroyer would have.<sup>6</sup> The follow on AOPVs will be delivered to the RCN incrementally between 2018 and 2023 until all six have achieved full operational capability.<sup>7</sup> Although the AOPVs are patrol ships that will perform a constabulary role rather than being a true warship, their construction marks the building of the first new ships for the RCN since the Maritime Coastal Defence Vessel (MCDV) project was completed in the late 1990s with the delivery of the *Kingston*-class vessels.

### **CONFIRMED CAPABILITIES**

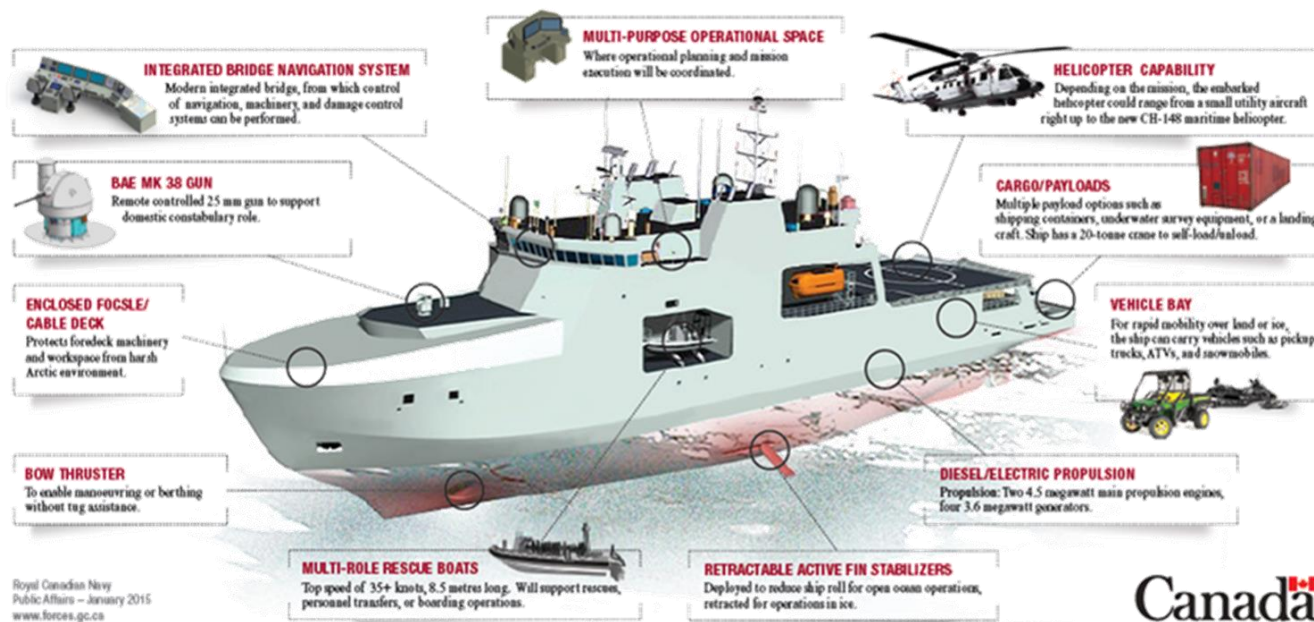
With the final design approved and construction of the AOPVs underway the final capability of the vessel is for the most part confirmed. A summary of the vessel characteristics is relevant to the follow-on parts of this paper.

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<sup>5</sup> "Arctic/Offshore Patrol Ship (PMO AOPS)." Assistant Deputy Minister (Materiel). <http://www.forces.gc.ca/en/business-equipment/arctic-offshore-patrol-ships.page>.

<sup>6</sup> Sharon Hobson, "Is A/OPS an Acceptable Compromise?" Canadian Naval Review, Volume 7, no 4 (2012), 42

<sup>7</sup> PMO AOPS, <http://www.forces.gc.ca/en/business-equipment/arctic-offshore-patrol-ships.page>.

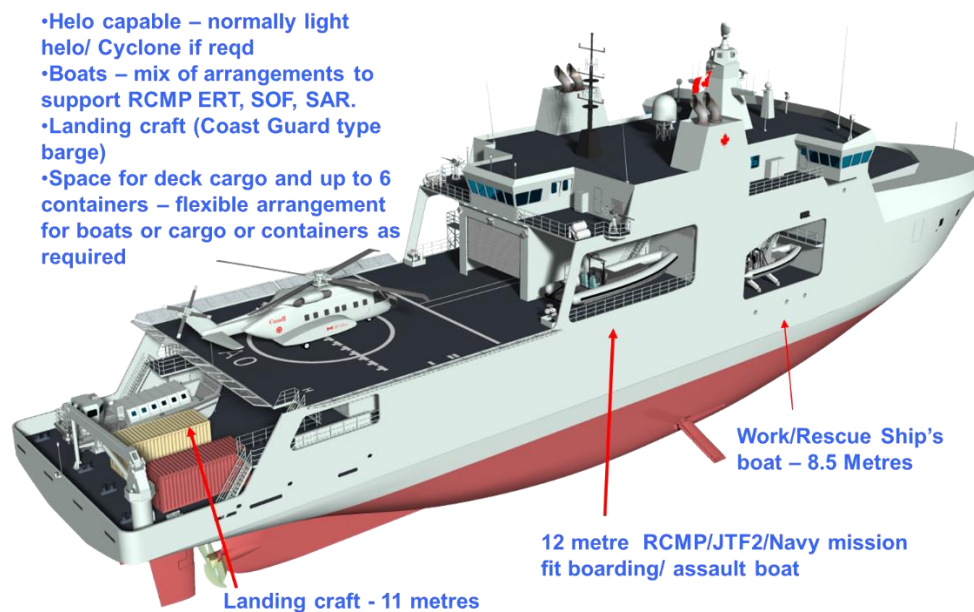


- Speed – 17kts
- Range – 6800NM @ 14kts
- Endurance – 120 days with 65 personnel
- Accommodations – 67 core crew + 20-person mess deck for mission personnel
- Polar Class 5 – Capable of maintaining 3kts in up to 1 of 1st year ice
- Safely operate a light helo, provide limited support to CH148 Cyclone
- Depart and arrive in berth unassisted in up to 25kts of wind and 2kt current<sup>8</sup>

Of note, from informal discussions with the engineers in the project office they assess that the actual max speed of the AOPV will be 19-21kts vice the 17kts listed. The 17kts is what the design speed will be based on the fitted engines and hull design as primary factors. This will be confirmed during the builder's trials once the ship's construction is complete. Additionally, the AOPV will be capable of carrying up to 6 sea containers. In theory, each sea container can be configured to comfortably accommodate 6 additional personnel should there be a requirement to

<sup>8</sup> Project Management Office - Arctic Offshore Patrol Ship. Arctic Offshore Patrol Ship (AOPS) Specifications. (Ottawa: Assistant Deputy Minister (Materiel): 2015), 5.

do so. This would then comfortably augment the 20 mission personnel that there are already accommodations for within the ship by an additional 36 personnel should an assigned mission have that requirement. This is comparable to the principle of the 6 person accommodations pod which is regularly embarked in the MCDVs when the missions call for additional personnel.



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As displayed in the image above, the AOPV is capable of carrying an organic helicopter. It is expected that normally AOPVs will operate and maintain one light organic helicopter for the length of most of their deployments. It is yet to be determined if the RCN will contract light helicopter services from a civilian company or perhaps from the Canadian Coast Guard. The AOPVs will be able to land, launch, house and re-fuel a Cyclone; however, it is not envisioned that an Air Dept similar to that of a major warship would embark to be capable of conducting the

<sup>9</sup> PMO AOPS, Specifications, 7.

same level of organic maintenance.<sup>10</sup> This restriction is based on a lack of hangar space. The AOPVs are not equipped with a Recovery, Assist, Secure and Traverse system (RAST) or a Helicopter Hauldown and Rapid Securing Device (HHRSD) and therefore will not be able to conduct helicopter operations in adverse weather when the pitch and roll of the vessel is outside of the suitable parameters for a free deck landing. The flight deck of the AOPVs are capable of landing on up to a helicopter the size of the RCAF's CH-149 Cormorant.<sup>11</sup>

The AOPVs will be a very capable platform for boat operations and will actually exceed the capability of other ships in the RCN to carry and launch small boats. The AOPV is equipped with two 8.5 m boarding/rescue boats which will be stored in recessed alcoves and have a door in the side of the hull to protect personnel and equipment from foul and cold weather. The two boats have easy access from Naval Boarding party assembly area, diving facility and Boatswain workshop. There are also heated dressing and drying areas adjacent to both boat alcoves.<sup>12</sup> Additionally, the AOPVs are fitted with the space and davits to carry two additional mission specific boats such as 12m RCMP ERT boats, enclosed lifeboats, or CANSOFCOM assault boats. The added flexibility of being able to carry four small boats and have boat davits/cranes which have the lifting capacity to launch the boats with the boat's crew and passengers embarked will prove to be a force multiplier for any small boat operations when compared to past RCN ships. The quarterdeck area will be utilized as a configurable cargo area. The quarterdeck can take up to six sea containers, landing craft, extra small boats or some combination thereof depending on the mission assigned to the AOPV.<sup>13</sup> This is an amount cargo storage space in a

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<sup>10</sup> Director General Maritime Force Development. Arctic/Offshore Patrol Ship Concept of Employment. (Ottawa: Maritime Command, 2011), 14.

<sup>11</sup> PMO AOPS, Specifications, 7.

<sup>12</sup> Ibid 8.

<sup>13</sup> Ibid 9.



non-supply ship which provides the RCN with a payload flexibility which it has not had in the past.

In support of its constabulary role the AOPV has been fitted with a 25mm main deck gun in addition to .50 heavy machine guns and other small arms. The main gun is a BAE 25mm gun system which will be self-loading, remote fired from the bridge and have a EO/IR fire control system.<sup>14</sup> This gun will give the AOPVs the ability to conduct interdiction operations plus support to Law Enforcement and OGDs with an enforcement mandate.

This summary of capabilities will provide context for the follow-on parts of this paper. Ultimately, the original Concept of Employment does not reflect the actual capability which is now being built into the AOPVs. Despite some deficiencies the AOPVs bring an enhanced capability to the RCN in its ability to patrol Canadian waters

## **CONCEPT OF EMPLOYMENT**

Based on the statement of requirements for the AOPS project the RCN's Director General Maritime Force Development (now renamed Director General Naval Force Development) produced a AOPS Concept of Employment in January 2011. This Concept of Employment has not been officially updated since its publishing and is focused on the AOPVs operating in the Arctic while not putting emphasis on other suitable employment which the AOPVs can fulfil both domestically and globally. Additionally, the Concept of Employment was written before the final capability of the AOPV was established, therefore it is not entirely reflective of what the AOPV will have the means to accomplish with regards to assigned missions.

In the AOPS Concept of Employment there is a very clear mission statement for these vessels which is inclusive of their Patrol Ship capability that includes operations throughout

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<sup>14</sup> Ibid 26.

Canada. “Mission: The AOPS will provide presence, surveillance and response in Canada’s EEZ, including in the Arctic, in order to uphold Canadian sovereignty.”<sup>15</sup> The mission of the AOPVs is further defined by the vessel being given three primary tasks which are Sovereignty Patrols, Maritime Domain Awareness, and Assistance to OGDs. The additional secondary tasks that are outlined for the AOPVs are to Support Forces Ashore, Humanitarian Assistance/Disaster Relief, Search and Rescue, Counter-Terrorism, Aid to Civil Power, Civil Military Cooperation/Community Support, and Support to Science.<sup>16</sup> This mandate is a narrow scope of missions for the AOPVs when compared to the capability of the vessel. Although many of these missions are open to interpretation and it is acknowledged that the AOPVs are to be non-combatant constabulary ships, the possible mission set can be broader. As the concept of employment for the AOPVs is further developed then it is critical to formalize additional tasks and missions for the AOPVs by Naval Force Readiness or by DGNFD. This formalization ensures that the class desk at ADM(Mat) is able to provide the appropriate support to the vessels and that the personnel system is responsive to the evolution of the ship’s missions.

The Concept of Employment is lacking a through definition of the Operational Environment in which the AOPVs will operate. The Concept of Employment clearly states that the vessel will operate in the Canadian Arctic and alludes that it will operate within other parts of the Canadian EEZ and potentially into the Caribbean region.<sup>17</sup> Since the Concept of Employment was produced the RCN has pushed the boundaries of how it has employed its *Kingston*-class vessels and we have seen them regularly perform roles that in the past had been performed by

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<sup>15</sup> AOPS Concept of Employment, 7.

<sup>16</sup> Ibid 8.

<sup>17</sup> Ibid 9.

*Halifax*-class frigates such as counter-narcotics in the Caribbean<sup>18</sup>, exercises in the Mediterranean, and capacity building in Africa's Gulf of Guinea<sup>19</sup>. Based on how the RCN has employed that smaller and less capable ship it can be assessed that the AOPVs will be employed in all those roles and more. This paper recommends the following as a more robust definition of the Operational Environment in which the AOPVs may operate.

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Operational Environment Recommendation:

*Harry DeWolfe*-class patrol vessels are versatile, multi-role ships intended to patrol Canada's territorial waters to include the Arctic Ocean during the navigable season of open water conditions. They can be employed in low conflict environments (e.g. threat of small arms or rocket propelled grenades)<sup>20</sup> as a self-supporting unit, but in a multi-threat environment must be protected by a major surface combatant.

The normal intended operating areas for *Harry Dewolfe*-class patrol vessels are:

- a. Canadian Coastal and Inland waterways including territorial waters and exclusive economic zone south of 60 degrees north;
- b. North American and South American Continental inland and coastal waterways including Gulf of Mexico and Caribbean Sea).
- c. European Coastal and inland waterways;
- d. Archipelagic islands (Hawaii, Alaskan Islands);

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<sup>18</sup> Department of National Defence, "Operation CARIBBE," <http://www.forces.gc.ca/en/operations-canada-north-america-recurring/op-caribbe.page>.

<sup>19</sup> Ottawa Citizen, "HMCS Summerside and HMCS Moncton return from African mission," 2 May 2017, <http://ottawacitizen.com/news/national/defence-watch/hmcs-summer-side-and-hmcs-moncton-return-from-african-mission>.

<sup>20</sup> AOPS Concept of Employment, 14.

- e. Canadian and United States Arctic waters (north of 60 degrees), when ice conditions permit; and
  - f. High Seas.
  - g. Coastal regions of Africa
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The recommendations above are important to be formalized so that there is a clear understanding by the operational authority as to the extent to which the vessels may be employed. Similarly, this formalization ensures that the technical authority is able to manage the ISSC and other support to facilitate operations not just in Canada but also abroad. There are many missions both outside and inside of Canada which it may not be the best use of resources to utilize a major surface combatant such as a frigate or a destroyer. In past years despite their limited capability, the MCDVs have been employed in a broad range of these assignments. As the MCDVs continue to age the AOPVs provide a suitable platform as they come into service to replace the MCDV in many patrol ship type tasks.

In addition to the primary and secondary tasks that the Concept of Employment states this paper makes the recommendation of a few additional tasks. Some of these tasks may be implied within what was already stated in the Concept of Employment but by stating them explicitly it provides clarity to all stakeholders.

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Additional Tasks Recommendations:

- a. Support to OGDs: *Harry DeWolfe*-class vessels will support Department of Fisheries and Oceans in support of fisheries compliance within the Canadian Exclusive Economic

Zone or in NAFO areas, as appropriate. Kingston class may also support RCMP, Environment Canada, Natural Resources, CBSA, Parks Canada, etc. in law enforcement. Support to these types of missions generally requires the use of intelligence, surveillance and reconnaissance (ISR) tools and small boats to support OGD boardings.

b. Support to Defence Research: *Harry DeWolfe*-class vessels will be able to aid researchers by inserting open ocean buoys, cables and sensor arrays by embarking mission specific modular equipment on the ISO pad locations. AOPVs also have a 20T crane located on the stern which gives the ship a heavy self-load/unload capability which will be unique in the RCN. Of note, due to the extra accommodations and work space in the *Harry DeWolfe*-class may be considered as the first option for Force Development (FD) and scientific work when appropriate.

c. Maritime Patrols: *Harry DeWolfe*-class vessels can conduct sovereignty and maritime security patrols in Domestic waters in support of Canadian Joint Operations Command. AOPVs are unique in the Navy for their bow thruster and associated manoeuvrability and its ability to conduct operations in tight waters relative to its size and no requirement to rely on tug assistance in adverse weather when berthing or departing ports. These patrols can occur throughout continental North America including the Arctic.

d. Strategic Engagement: *Harry DeWolfe*-class vessels will be capable of conducting visits in Canadian and International ports in support of government or RCN aims. These visits may include demonstration, training events, and capacity building with other navies and/or hosting receptions to support Global Affairs Canada.

e. Counter Drug Interdiction: *Harry DeWolfe*-class vessels will be able to conduct counter drug interdiction operations in support of CJOC operations in the Caribbean and

Central America. This includes the ability to embark and deploy US Coast Guard Law Enforcement Detachments and/or Enhanced/Advanced Naval Boarding Parties via small boat.

f. Support to Diving Ops: *Harry DeWolfe*-class vessels will provide a platform which can support diving operations conducting by Clearance Divers such as salvage work, underwater engineering, deep diving, etc. By embarking existing ISO pods configured for a hyperbaric chamber and use cranes, small boats and other mission specific items the AOPVs can provide support to diving operations with capabilities not within the RCN since divesting *HMCS Cormorant*.

g. Humanitarian Assistance/Disaster Relief: *Harry DeWolfe*-class vessels will have the largest cargo carrying capability of any vessel in the RCN until the interim AOR and subsequent Joint Support Ships join the fleet. The ability to embark 6 ISO pods (or more if a helicopter is not embarked) provides a significant capacity to respond to an HA/DR scenario. The ISO pods can carry relief supplies, but they can also be configured to specific mission modules which will have the equipment within to provide services such as water production, power generation, and waste disposal (incinerators). Additionally, the AOPVs has the extra accommodations within to embark extra personnel for work parties or other specific HA/DR tasks.

h. Support to SOF: *Harry DeWolfe*-class will be well equipped to support SOF operations. It will be the only RCN ship capable of embarking the full size SOF assault RHIB which CANSOFCOM presently uses. Additionally, there is the additional accommodations for 20 SOF personnel. There is also a dedicated briefing room for a SOF team, Enhanced Naval Boarding Party, RCMP ERT, etc with storage lockers for

their additional kit plus additional small arms and magazine storage space on board.

AOPVs will provide an excellent platform to launch SOF from, but if it is operating within a hostile environment then it will require an escort by a major surface combatant.

i. Peace Support Operations: *Harry DeWolfe*-class will be capable of supporting Peace Support missions these when operations occur in a coastal region. AOPVs will have the capability to land and recover personnel ashore and associated equipment through use of a landing craft on a wide variety of the world's shorelines. Utilization of ISO pods that will be configured to provide a broad range of capabilities can provide support to peace support operations ashore. The AOPVs can also facilitate air support ashore through use of an embarked helicopter. If not operating in a permissive environment then AOPVs will require a major surface combatant escort in order to facilitate support to Peace Support Operations.

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The recommendations for additional tasks in this section are by no means exhaustive of all the possible missions which the AOPVs could be capable of executing. The scope of missions are drawn from review of the RCN's strategic vision laid down in *Leadmark 2050*<sup>21</sup> and based upon the missions in which the RCN has employed *Kingston*-class vessels in a patrol vessel role. Historically the RCN has always maximized the use of its assets by taking on as broad a scope of missions as possible in order to maximize its utility to the CAF and the Canadian Government as a whole. However, rather than expand the operational use of the AOPVs in an ad hoc fashion the responsible course of action is to clearly state the intent to use these ships for this wider variety of missions. By first defining those additional missions then stakeholders can conduct a more detailed analysis to occur of what the second and third orders of effect could be. The *Harry*

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<sup>21</sup> Department of National Defence, Canada in a New Maritime World *Leadmark 2050* (Ottawa: DND, 2016), 20.

*DeWolfe*-class will bring additional capability to the CAF and in order to most efficiently make use of the new asset and limit potential negative impacts on the existing personnel or equipment systems and review and update of the AOPV Concept of Employment will facilitate this.

### **PRICIE CONSIDERATIONS**

This section is concerned with PRICIE<sup>22</sup> considerations building on the now known capabilities that the AOPVs will have upon entering into RCN service. It identifies areas for further study and considerations not within the original Concept of Employment. This PRICIE analysis will build upon the recommendations made earlier in this paper for Additional Tasks that could be included in the AOPV Concept of Employment.

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<sup>22</sup> Emile Pelletier. "Operational research and analysis supporting Canadian Army PRICIE + G analyses," Defence Research and Development Canada, (Ottawa: 2016), 5.





sail in the range of 150-200 days per year. When ships are sailing that often and the special parties are pulled from other CAF organizations then the second and third order effects can be negative in the context that these individuals may not be doing their primary jobs for significant portions of the year while supporting AOPVs. The RCN should formalize what the construct of these mission specific personnel parties are and then create an organization similar to the Maritime Tactical Operations Group<sup>26</sup> that is on each coast so that personnel can be posted there and are both ready and available to sail with AOPVs as required.

#### Individual Training:

The core crew individual training has commenced already in order to accept this new ship into the RCN. The true individual training challenge will be to assess what skills that the CAF mission personnel will require and ensure that they are appropriately trained and that their skills remain current.

#### Leadership:

The leadership challenge will be the generation of experienced *Harry DeWolfe*-class officers and senior non-commissioned members at the Head of Department/Chief of Department level and balance career progression for sailors as directed by Director Naval Personnel. This is important to define because it must be clear if sailors will specialize as AOPV crew members or if the career streams will be built so that a member's sea going career involves postings in both AOPVs and frigates and even potentially MCDVs or not. The employment of a sailor in an AOPV may be significantly different than their employment in the same rank/position in a

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<sup>26</sup> DND, Leadmark 2050, 49.

frigate and it should be clarified as to how the RCN will view employment in this new class of ships.

#### Research & Development (R&D) and Operational Research (OR)

Due to the large area of operations and versatile capability that the AOPVs will bring to the RCN there will be times when the *Harry DeWolfe*-class vessels support R&D and OR, particularly with the divestment of the RCN's auxiliary science vessel *Quest*<sup>27</sup>. Support to R&D and OR will likely be incorporated into assigned missions or potentially be the primary mission when an AOPV proceeds to sea. These tasks will require coordination between the design authority, Naval Force Readiness, the coastal operations schedulers and the requesting agency.

#### Infrastructure and Environment

Current infrastructure is being upgraded in Halifax and Esquimalt to meet the requirements of the *Harry DeWolfe*-class with the construction of new jetties. Additionally, the Arctic support facility at Nanisivik is expected to support *Harry DeWolfe*-class ships in the future. The ISSC and dedicated shore-based logistical and engineering staff will need to be flexible to ensure that the AOPVs receive support within all areas of operations but must be considered as a planning consideration for deployments due to increased costs and challenges.

#### Concepts, Doctrine and Collective Training

Concepts:

All concepts related to the *Harry DeWolfe*-class are in a nascent and developmental stage. There is significant concept development that is forecasted and planners should ensure that they do not focus solely upon Arctic Operations at the expense of other missions. To support

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<sup>27</sup> National Post, <http://news.nationalpost.com/news/canada/canadian-navy-to-decommission-its-last-research-vessel-leaked-documents-reveal>.

development of the RCN / D Nav Strat modularity concept, Kingston class platforms may be selected to embark conceptual payloads.

#### Doctrine:

All doctrine related to the *Harry DeWolfe*-class is in the developmental stage. The doctrine should consider a global mission scope vice simply Arctic/domestic concerns.

#### Collective Training:

The concept of Collective Training for the *Harry DeWolfe*-class is in the developmental stage. However, it is assessed that the initial plans for collective training will draw upon practices from both Major Warships and Minor War Vessels (MCDVs). Collective training for this class of ship should take into account the mission specific personnel and how they are enablers to the different missions which the ship will execute.

#### Information Management and Information Technology

Current CIS RCN capabilities will provide *Harry DeWolfe-class* vessels with adequate bandwidth to execute assigned missions.<sup>28</sup> Planners must be cognizant that future systems, programs, payloads and capabilities may require additional bandwidth to function effectively.

#### Equipment, Support and Sustainability

##### Equipment:

The AOPS was designed to predominantly address domestic security and constabulary imperatives. As a result, other than some exceptions such as secure communications and computer networks, main gun and small arms, it will not have the system redundancy and survivability normally associated with a combatant. It will receive modular mission fits to

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<sup>28</sup> DND, NAVGEN 013/17, RCN Communication Update.

execute different tasks that will likely be different almost every time the AOPVs proceed to sea<sup>29</sup>.

#### Support and Sustainment:

The *Harry DeWolfe*-class vessels will be supported by an In-Service Support Contract (ISSC) of condition-based maintenance. Based on previous ISSCs, the RCN will be contractually obligated to ensure each active ship is available to the contractor for a specified period. Therefore, coastal scheduling authorities will be required to ensure compliance with the conditions of the ISSC by not overscheduling the sailing days of the AOPVs to be compliant with contract terms and conditions.

#### ANALYSIS

Under the Canadian Naval Readiness and Sustainment framework, the crews of the AOPVs will need to execute "...assigned CAF continental and expeditionary missions that do not entail the possibility of high intensity, full spectrum combat."<sup>30</sup> Skill sets needed to conduct this described mission rely on technology and equipment suited to the task and environmental conditions. Aside from previously discussed SAR seamanship tasks, other core Naval tasks include gunnery and MIO.<sup>31</sup> Additionally, there will be numerous times when the ship is conducting support to DRDC/science that the AOPVs will be called upon to do seamanship evolutions not within the normal parameters of RCN Seamanship.<sup>32</sup> Examples of this include the deploying and picking up of scientific buoys, laying and recovering submarine cable, and significant use of the amphibious landing craft to transport supplies ashore. To fully adapt these

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<sup>29</sup> AOPS Concept of Employment, 13.

<sup>30</sup> Director Naval Force Readiness, CFCD 129 Readiness and Sustainment (Ottawa: Royal Canadian Navy, 2009), 15.

<sup>31</sup> CFCD 129, 23.

<sup>32</sup> Director Naval Force Readiness, CFCD 105 Seamanship.

skill sets into the around the world with a crew construct which will much smaller than a Canadian major warship, existing practices and training will need to be reviewed and adjusted. There will need to be an institutional adjustment of mindset within the RCN to remember that these are constabulary vessels and not warships, therefore not having the large number of personnel that a major warship has and that inherent capability that can come with a large crew.

The AOPV will mount a 25mm main gun on the bow and will have .50 calibre Heavy Machine Guns (HMGs).<sup>33</sup> The RCN is proficient in gunnery at sea through the handling of these weapons though training scenarios and on operations overseas. However, there has been little experience in using these weapons in support of an OGD law enforcement agency like the RCMP, DFO or CBSA. Expertise will need to be developed at the tactical level to support law enforcement and interdiction operations and to meet their requirements.<sup>34</sup>

Since the mid-1990s the RCN has been a serious player in MIO and boarding operations.<sup>35</sup> The Naval Boarding Party (NBP) capability in the RCN has now been recently upgraded in the RCN with the establishment of the Maritime Tactical Operation Group (MTOG) which provides an Advanced Naval Boarding Party on each coast.<sup>36</sup> RCN use of the AOPVs as a dedicated MIO platform will be in some situations a more balanced use of capability than the use of a *Halifax*-class frigate. This is because Frigates have a loss of combat capability every time they engage in in boarding operations due to a combination of personnel reductions throughout the ship to provide manning from the NBP and conducting boat work to the ship's sensors and weapons being unusable during that evolution. When committing an RCN asset to a permissive environment it is a better use of resources to then deploy an AOPV on what might be a primarily

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<sup>33</sup> PMO AOPS, Specifications, 26.

<sup>34</sup> AOPS Concept of Employment, 13.

<sup>35</sup> DND, Leadmark 2050, 38.

<sup>36</sup> Ibid 49.

MIO environment vice a frigate. Should the environment not be permissive and there is an MIO mandate it may actually be most practical to deploy an AOPV with a frigate escort to maximize capability across the spectrum.

The distances involved in transiting to the Arctic from Halifax or Esquimalt made endurance a primary factor in the requirements of the AOPVs. For example, an Esquimalt based AOPV transiting to Nanasivik will travel a comparable distance as Esquimalt to Tokyo. Similarly, an east coast AOPV's transit from Halifax to Nanasivik is of a distance comparable to a trans-Atlantic trip to London.<sup>37</sup> As a result, the AOPVs is being built with a range of 6,800NM at a 14kt transit speed. This will facilitate the AOPVs in being more than just a domestic vessel since transit ranges of that level allow the AOPVs to transit either the Atlantic or Pacific Oceans without refueling.

The recommendations above are practical missions for the AOPVs which can be tasked to this class of ships by either CJOCC/MCC or the appropriate coastal authority. By formalizing these tasks in the Concept of Employment it will facilitate the Collective Training of AOPV ships' companies as it establishes these tasks as part of the mission set the *Harry DeWolfe*-class and will shape the readiness requirements for the AOPVs. Recent years of RCN operations have proven that a small ship such as the *Kingston*-class performed in a much broader series of missions than the class was originally conceived for. This out of the box thinking that is inherent in the RCN to maximize the opportunity which an asset can provide is already foreshadowed in Leadmark 2050 with vignettes about employment opportunities for the AOPVs. However, rather than pushing the operational boundaries of the new ship in an ad hoc fashion as was done with the *Kingston*-class the RCN should formalize the possible scope of employment for the AOPVs

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<sup>37</sup> AOPS Concept of Employment, 4.

early to ensure training is appropriately tailored and maintenance properly conducted to support such overseas missions.

## CONCLUSION

The *Harry DeWolfe*-class AOPVs will soon join the RCN's fleet and provide a new ship for employment. There have been many questions as to their utility and this paper has argued that they will provide capacity to the CAF because the public must think of them as more than just Arctic ships that are only capable of operating up North 4 months a year. The RCN has acquired Offshore Patrol Ships which are capable of conducting both domestic and expeditionary operations. The AOPVs are more capable in equipment and size than the *Kingston*-class vessels, and the MCDVs have been employed for the last decade off the coast addressing illegal activities, logging problems and fishing violations. More recently the MCDVs have been the RCN's regular contribution to OP CARIBBE and have conducted a broad range of capacity building missions in Central America and in West Africa. The AOPVs will be more capable than MCDVs, they will carry a helicopter, and will have a cargo carrying capacity and small boat capability that will be unmatched in the RCN.

The AOPS project which has evolved into the *Harry DeWolfe* AOPV was thrust upon the RCN by the government of the day with the intent of complementing the Arctic sovereignty strategy. As a result the original statement of requirements and subsequent Concept of Employment were very focused on the ship operating in the Arctic. However, the robustness that was required for these ships to operate in the austere Arctic and off the East and West coasts of Canada also make the AOPVs capable and suited to being employed anywhere in the world. The RCN will employ these vessels in a global capacity and this paper provides some



recommendations on formalizing the employment of the AOPVs so that the personnel and equipment systems of DND are best able to support the success of these ships.

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