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Putting the 'War' back into Minor War Vessels: utilising the Arafura Class to reinvigorate high intensity warfighting in the Patrol Force

By LEUT Brett Willis

Introduction

It is a curious statistic of the First World War that more sailors and officers were killed in action on Minor War Vessels than on Major Fleet Units in all navies involved in the conflict. For a war synonymous with the Dreadnought arms race and the clash of Battleships at Jutland the gunboats of the Edwardian age proved to be the predominant weapon of naval warfare. These vessels, largely charged with constabulary duties pre-war, were quickly pressed into combat and played a critical role in a number of theatres rarely visited in the histories of WWI.

I draw attention to this deliberately for the purpose of this article is to advocate for the exploitation of the current moment of change in the RAN Patrol Boat Group and configure it to better confront the very real possibility of a constabulary force being pressed into combat. This article will demonstrate that prior planning & training will create a lethal Patrol Group that poses a credible threat to all surface combatants by integrating guided weapons onto the Arafura Class. This will be accomplished by drawing on history to demonstrate a repeated pattern of the use of patrol forces in combat before examining the shortfalls of the ACPB as a surface combatant. Finally, I will argue that the incorporation of guided weapons will result in flow on benefits to the continuity of warfighting professional development.

HMAS Pirie passes under the Gateway Bridge on the Brisbane River after her final departure from HMAS Moreton in Brisbane, Queensland, before she decommissions. Photographer: LSIS Steven Thomson, 2021.

FROM CONSTABULARLY TO COMBAT: HISTORICAL MWV USE

An examination of the use of minor war vessels in the conflicts of the 20th century highlights a thematic commonality as to how to make them combat effective. While the weapons and tactics have evolved, the capability to incorporate weapons systems on par with that held by the major combatants of the day was the key to minor war vessels providing meaningful contribution when constabulary duties cease and combat operations commence.

In the decades leading to First World War the constabulary gunboats of the European empires were in the process of being run down, largely because so many of the designs were deemed as having little utility in fleet actions. However, the advantage of shallow draught vessels being able to exploit littoral features proved useful when the primary naval weapon systems of the time (i.e. medium and large calibre guns) could be incorporated into pre-existing designs.

Whilst gunboats and monitors were limited in their ability to engage other surface ships they were able to exploit the cover of their larger brethren to deliver on shore effects; the Royal Navy was able to utilise their control of the English Channel to deploy heavily armed monitors to the Belgian coast to disrupt shipping and secure the western flank of the British army through persistent shore bombardment. This is not to say that minor war vessels were entirely incapable of ASuW; HM Ships *Mersey* and *Severn* sank the cruiser SMS *Königsberg* once she had been pursued into Rufuji Delta by using their shallow draught and external spotting to take up advantageous firing positions. In terms of lessons learnt it is clear that in the event of conflict minor war vessels will be called upon to conduct duties beyond their constabulary duties and that their capacity is dependent on the flexibility of their design to factor in new weapon systems.

This pattern would evolve in the Second World War as a new weapon would emerge as the great equalizer for minor war vessels: the torpedo. In terms of a threat to warships this is a story best examined by contrasting the wartime service of the German Schnellboot and the American PT boats in the Pacific. The American PT boat has earned a reputation for 'punching above its weight' in the Pacific theatre, no doubt in part to its association with the exploits of John F Kennedy.

The image of PT boats dashing in to torpedo range against destroyers before escaping under fire is, however, largely a fallacy, in reality a PT boat would approach slowly so as to minimise noise from concealed positions to drop torpedoes in the dark of night. However, the threat posed by the PT boats to the Japanese was largely mitigated when the enemy became aware of the faulty nature of the American Mark 8 torpedo.

Despite this setback, the Americans were still able to utilise the disproportionate gunnery armament to act as a deterrent to Japanese convoys. The key takeaway from the American experience is that the influence of a minor war vessel in combat is directly proportionate to its capability, the American PT boats were hampered by their effective weapons being restricted to guns. Their contribution, while still significant, was limited to raiding convoys and as 'Barge Busters' rather than posing a credible threat to IJN fleet units. The Kriegsmarine had no such shortcomings in armament and their operational effect was not as limited as that of the USN.

The German Schnellboot (E-boat in RN parlance) was able to effectively leverage its functional torpedo armament to achieve a number of successes both against merchants and warships. Over the course of the war in theatres from the Baltic through the English Channel to the Mediterranean, E-Boats were a persistent threat to Allied shipping. By the time of Germany's surrender E-boats had accounted for 13 Destroyers, 13 Minesweepers and 360,000 tonnes of merchant shipping sunk.

Perhaps the largest single victim was the cruiser HMS *Newcastle* who was damaged so severely that she could not be repaired for 12 months. Even as late as April in 1944 E-Boats were able to infiltrate the preparations for D-Day to sink two Landing Ships and kill 746 men as they rehearsed landing on the Devon Coast. The lethality of the E-Boat proved the capability for a minor war vessel to exploit an effective armament to pose a legitimate threat to major fleet units, a trend that has been reinforced as Navies worldwide entered the missile age.

Combat between missile armed surface combatants has been limited since the Second World War but the incidents that have taken place have more often been between Minor War Vessels. The persistent threat posed by a credibly armed Minor War Vessels can be seen right the introduction

of anti-ship missiles when Egyptian Komar Class missile boats armed with the Styx missile sank the Israeli Destroyer Eliat.

The flexibility of guided weapons both for ASuW and Coastal Target Suppression was demonstrated by the Indian Navy (IN) during the 1971 Indo-Pakistani War. Utilising an Indian variant of the Komar Class, the IN conducted a strike on the port of Karachi as part of Operation Trident. Utilising the Styx missile to target ships and shore targets, the IN destroyed a number of ships (including at least one destroyer) and fuel tanks ashore which proved to be a crippling blow against the capability of the Pakistani Navy to put to sea.

Armed with the correct weapons, minor war vessels continue to pose a threat to major fleet units and provide a flexible platform for a variety of combat roles. This is provided that forethought is given in the scope of their design. Noting this we need to examine the current state of the RAN patrol force in the form of the Armidale Class Patrol Boat, compare its capabilities to those of its replacement and how this should be leveraged to improve the lethality of the fleet and her crews by incorporating guided weapons.

The sun rises over the Timor Sea as HMAS Armidale (II) transits to the wreck site of HMAS Armidale (I). Photographer: POIS Yuri Ramsey, 2020.

ARMIDALE TO ARAFURA

The current Armidale Class Patrol Boats (ACPB) are primarily designed for law enforcement. The considerations for warfighting in their design phase were either short-sighted or non-existent. This is demonstrated both in the use of an aluminium hull which offers less protection than steel plate from small arms fire, a primary armament exclusively designed for warning shots or disabling fire and a crewing arrangement with no redundancy in the event of casualties. The

arrangement of the 25mm Typhoon mount speaks best to this exclusive focus on border enforcement; even a trained crew takes 15 minutes to load the weapon and while doing so must be exposed on a raised platform on the forecastle. In the event of armed conflict the ACPBs are limited in their capability for operations in a contested environment; acting as a choke point escort for task groups (provided sufficient prepositioning and forward planning takes place as the ACPBs are extremely limited in their ability to RAS in addition to their aforementioned limited combat capability and endurance) and insertion of reconnaissance/special forces via Zodiac (again a situational capability and no training is currently conducted to prove the utility of providing extraction under fire or how to maintain a low profile in a littoral environment). Even a cursory examination of the armament, endurance and training of the patrol boat force reveals that the success of the ACPB as a border enforcement platform has come at the cost of its capability as a surface combatant.

HMAS Canberra's 25mm Typhoon fires during a live fire exercise at sea for AUSINDEX 2019. Photographer: LSIS Steven Thomson.

It is questionable as to how the ACPBs (constituting 13 ships of the RAN's surface fleet) could make a meaningful contribution; if called upon to defend a task group against an organised FIAC attack the armament of two 12.7mm QCB, small arms and limited combat utility of the 25mm gun would be rapidly overwhelmed. With the creation of the Australian Border Force and the introduction of the Arafura Class Offshore Patrol Vessel (OPV), the RAN has an opportunity to complement the Border enforcement role of the Patrol Boat Group with a warfighting capability more suited to potential future conflicts.

The transition from the ACPB to the OPV represents an opportunity to create a legitimate surface combatant that can remain primarily orientated to constabulary duties with a capability to incorporate guided weapons in time of conflict to either support coastal target suppression or act as a missile platform utilising third party targeting to maximise survivability. Several features of the Arafura Class render it a more scalable design than the ACPB in terms of warfighting capability.

Firstly, the 40mm Bofors is a far more capable weapon that the 25mm Typhoon. Its turreted design and 100 round magazine loaded internally renders it more capable as a combat weapon.

Secondly, its 'situational awareness system' is a derivative of the existing 9LV architecture of incorporated into the FFH and LHDs which gives it a C2 capability to integrate with the task group which can act to enhance its own sensors. The use of modularisation facilitates the rapid integration of armament more appropriate to engagement against surface combatants. Current concepts surrounding the utility of this capability have centred on increasing accommodation or incorporation of a UAV capability. While these are useful for the constabulary duties for which the OPVs were purchased, exploitation of this system could readily enhance their lethality in a high intensity warfighting scenario.

Northrop Grumman have recently revealed a conceptualisation of incorporating AGM-88E HARM missiles into a standard 20ft shipping container, something which could be adapted for the modular containerised system used by the OPV. The incorporation of AGM-88E would be immensely useful given that potential adversaries currently need only factor for active RF seekers of the Harpoon and laser designated Hellfire when countering RAN surface combatants. The presence (or potential presence) of an OPV armed with anti-radiation missiles would force an enemy to consider their emitter states in a way that the surface fleet cannot currently achieve. While the RAN can currently only threaten detection against a live emitter, the AGM-88E offers the capacity to threaten destruction of surface targets, coastal batteries and SAM sites should they choose to radiate.

HMAS Stuart conducts a live Harpoon Missile firing off the coast of Hawaii during Exercise Rim of the Pacific 2020. Photographer: LSIS Christopher Szumlanski.

The design on which the Arafura Class is based has already been proven as a missile capable platform. The OPV80 design, the Darussalam Class of the Royal Brunei Navy, is armed with the MM40 Block III Exocet. Fortuitously, the dimensions of the Exocet launchers are near identical to

the RAN's Harpoon Block II. Furthermore, the Harpoon as a GPS guided weapon could easily be integrated into the Arafura Class; it does not require the installation of heavy and power intensive fire control radars. Incorporation of Harpoon into the Arafura Class would make them a potent and flexible strike weapon; able to engage surface and shore targets at a standoff range in a way demonstrated by the IN in Operation TRIDENT.

The addition of guided weapons, whether as a fixed weapon in the form of Harpoon or a containerised system such as the AGM-88E serves not only to increase the lethality of the Arafura Class as individual fleet units but to advantage the RAN as a whole. The incorporation of these weapons into the Patrol Force would have broader ramifications and improvement for the fleet both as a fighting force and as a training benefit for the officers and sailors who serve in them; creating an unbroken chain of warfighting development across the platforms utilised by the warfighting community.

DISTRIBUTING LETHALITY

In any high intensity armed conflict, the risks to the RAN surface fleet are many and varied. With a total of 11 Surface combatants (8 x FFH, 3 x DDG once the FFGs are decommissioned), the loss of a single ship would have a drastic effect on the strike power of the fleet and its capability to inflict losses on a potential foe. The capability of the Patrol Group to have any influence on this equation is zero; the ACPBs have no weapon systems capable of engaging anything larger than a FIAC, nor are its personnel trained in anything more than force protection. Even the 40mm gun of the OPV is of limited combat utility; modern ASuW is a realm dictated by the presence of guided weapons and ranges measured beyond that capable of conventional naval artillery. To have any appreciable impact in an ASuW battle, a ship requires guided weapons that can reach out to the enemy beyond visual range. One need only look at the proliferation of missile boats that demonstrate the feasibility of achieving such an armament in a vessel with the size and displacement of the Arafura Class. Given current orders placed, this would double the number of guided weapon surface platforms in the RAN surface fleet at a stroke.

While obviously increasing the RAN's capacity for both maritime strike and coastal target suppression, arming OPVs with guided weapons also increases the challenge for an adversary in supressing the RAN's offensive capabilities. Firstly, in a task group hull or mission kills against Frigates and Destroyers would not be as catastrophic as they currently are to the RAN's order of battle; currently hits against any escort removes capability from the ASW, AAW and ASuW spectrums simultaneously. With OPVs armed with guided weapons the task group retains the capability for retaliatory strikes through the distribution of guided weapons across a larger number of hulls. Secondly, upgrading the OPV to a guided weapon surface combatant forces the enemy to distribute their own finite supply of guided weapons to supress targets of a lesser capability.

Expending guided weapons against OPVs would force an adversary to either increase their ammunition expenditure rate or risk failing to inflict sufficient damage to render the RAN incapable of retaliation. Finally, by broadening the distribution of guided weapons to the minor war vessels the RAN increases its flexibility and capability by making guided weapons more readily available and deployable away from the HVU given that Frigates and Destroyers will necessarily be charged with escort duties. This would mean that MFUs could focus on the area defence around the Amphibious Task Group whilst still ensuring that guided weapons could be deployed against other targets of opportunity without compromising the protection of the task group.

A Light Landing Craft from HMAS Adelaide departs the ship for Cowley Beach in Queensland during Exercise Sea WADER 2020. Photographer: ABIS Sittichai Sakonpoonpol.

SYNERGIES FROM DEVELOPING MISSILE CAPABILITY

Incorporation of a guide missile capability (permanent or otherwise) presents a number of opportunities that extend beyond the simple expansion of modern ASuW platforms available to the RAN. Primarily, the regular use of guided weapons from OPVs offer opportunities in the professional development sailors and officers serving in the OPVs. This will be demonstrated by showing how the Maritime Warfare Officer continuum could be enhanced by maintaining a persistent warfare function on all platforms.

The RAN is by the standards of our most likely adversaries a small navy. Whilst we maintain alliances and security agreements that effectively integrate our fleet with those of our friends we are still beholden to government to be capable of defending our home by ourselves. Historical precedent proves that minor war vessels, when properly armed, are more than capable of engaging larger surface units and thus support our ability for self-defence.

Rendering the 12 OPVs and their crews to the status of 'constabulary only' is a waste of precious military resources when it is known that it can be armed with guided weapons. Having warfare specialists who have had continuous exposure to high end warfighting since gaining the BWC is far more advantageous to the fleet than having officers set aside their warfare knowledge to embark on constabulary duties. The introduction of the Arafura Class OPV offers the opportunity for the RAN to improve its strike power and enhance the lethality of its people. We need only take the opportunity before the capability of the fleet is tested in combat.

ABOUT THE AUTHOR

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