

AUSTRALIAN OFFSHORE COMBATANT VESSELS

The future Offshore Combatant Vessel will be able to undertake offshore and littoral warfighting roles, border protection tasks, long-range counter-terrorism and counter-piracy operations, support to special forces, and missions in support of security and stability in the immediate neighbourhood.

Defending Australia in the Asia Pacific Century:
Force 2030¹

To minimise cost and personnel overheads, the Government has directed that Defence develop proposals to rationalise the Royal Australian Navy's (RAN) patrol boat, mine countermeasures (MCM), hydrographic and oceanographic forces into a single modular class of around 20 offshore combatant vessels (OCV). This initiative could provide significant operational efficiencies and long term cost savings, and should substantially improve seagoing capacity as well as flexibility and deployability for future operations. The OCVs will be larger than the current *Armidale* class patrol boats, displacing up to 2000 tonnes. As well as replacing current patrol, mine warfare and hydrographic capacity the OCVs will also substitute for major combatants in less onerous warfighting tasks. The OCV concept will feature modular unmanned underwater MCM and hydrographic systems, which will be containerised and portable, useable from ashore, in any OCV or craft of opportunity.

While the OCV modular concept is yet to be developed in detail, it is likely that ships configured for specialist roles (say mine warfare) will be re-roled to meet other specific operational needs. The introduction of the modular OCV will also allow the Navy to exploit advances in mechanical and electronic technology and upgrade platforms simply and quickly during the course of the life of the ship; negating the need for long refits or major capability upgrade programs. The modular concept, hosting a range of capabilities in a common or near common hull should also limit purchase and operating costs and realise cost savings demanded by the 2009 Defence White Paper.



The new littoral combat ship USS Independence has many functional requirements that are similar to those of a future Australian offshore combatant vessel (US Navy)

Capability Development

The development of proposals for the OCV began with a detailed Joint Capability Needs Analysis in late 2009, which involved many authorities within and outside Defence. The outcomes of this analysis defined the scope of the OCV Project, better informed the capability needs, and identified the issues requiring further study in 2010. These studies will aid Defence in developing the top level requirements that will drive proposals for the OCV. The Defence Science and Technology Organisation (DSTO) and other agencies are providing technical support to develop qualitative and quantitative assessments that will guide future decisions. It is envisaged that the proposals to go to Government initially will be broad options based on past and ongoing studies; really an affirmation to proceed or not with the rationalisation concept, and in what form.

Other countries are also working on the OCV concept. The United States (US) Navy continues to develop the Littoral Combat Ship (LCS) program, a much larger ship which is also based on modular system concepts. The RAN will monitor the LCS program for any applicable lessons. The United Kingdom is also exploring options for combining patrol, MCM, and hydrographic roles into a common hull as part of its Future Surface Combatant program. Royal Navy studies will commence in 2010, and both the United Kingdom and Australia are seeking to share the results of their analyses.

Conceptual Issues

For some years, the RAN's long range plan, *Plan Blue*, recognised the need for multi-mission platforms comprising adaptable, flexible mission systems and identified a need to lessen costs by reducing crew numbers, and increasing automation and system and hull commonality.² To a large extent the key to rationalisation is 'commonality' - this may mean a single, common hull and permanently fitted systems; however, it may also mean hull 'variants' with a range of common permanently fitted equipment. A major challenge in replacing the current minor warship fleet with common or variant hulls and modular payloads is to embrace the concept without compromising on the level of capability needed for each role. That is, the mission payload is effectively the OCV's major weapons system and will need a significant investment. Any additional cost associated with mission systems is expected to be offset by savings from commonality in generic hull systems, training synergies and administration. To some degree the ship, as the carrier of this modular functionality, is the less important part of the overall OCV system, as long as it provides the endurance, range and survivability required by the strategic guidance.

Two key capability attributes which stand out from the White Paper guidance for the future force are 'deployability' and 'flexibility'. The modular OCV certainly has the potential to provide flexibility, as well as improving ship affordability. The need to deploy means that the OCV must be able to accompany a task force or advance force.

This has generally not been possible for either hydrographic or MCM ships, largely because of a lack of speed and limited communications. Additionally, seakeeping, endurance, and self protection measures are limitations of all classes of current minor war vessels. Nevertheless, the advantages of a future larger hull must be weighed against the possibilities that the associated cost may limit ship numbers and that current basing infrastructure may be inadequate.

Although the OCV is deliberately described as a 'combatant' it will almost certainly not be comparable in capability with any major surface combatant. Its design features will be aimed primarily to meet the patrol, mine warfare and hydrographic force needs and it will mount defensive weapons systems. It may also be built without the levels of survivability associated with major combatants, and so may need protection in higher level combat. Despite these potential limitations, the OCV, if capable of operating autonomous systems, may be able to contribute significantly in higher level conflict by operating from stand-off ranges.³ This premise will be tested through fleet experimentation and assessing the experience of other navies. Most likely, the future OCV will be tasked primarily in its specialist roles, but it will have the flexibility and capability to substitute for major surface combatants where their additional capability may be neither needed nor cost effective.⁴

As well as being flexible and deployable, the OCV must be able to defend itself against low to medium level air, surface and sub-surface threats. It must also be able to sustain operations with high systems serviceability and be able to operate with national or combined task forces.

Deployed task group operations, particularly those in littoral areas, are becoming more important and more common, both for humanitarian and military tasks. Future task group deployments involving the new amphibious ships with their ability to carry large numbers of troops, may need the accompaniment of MCM and hydrographic configured OCVs. They would be tasked with environmental assessment and mine identification and neutralisation and in some cases would need to precede the main body of the task group to an area of operations.

For mine warfare and hydrography especially, the OCV concept depends greatly on anticipated advances in automated technology for specialist sensors. These advances will bring both opportunities and burdens. On one hand, they should lead to superior understanding of the physical battlespace and the optimisation of sensors and weapons. On the other hand, more environmental data is likely to be collected, generating a need for more analysis, production and dissemination of information, and thus additional effort on the part of limited ships' companies. This is particularly relevant to the rapid environmental assessment (REA) capability needed in amphibious operations. It is also closely linked to the Task Group Mine Countermeasures (TGMCM) concept of operations, whereby similar deployable teams and their mine disposal systems deploy with the Task Group.

Synergies are continuing to develop among hydrography, oceanography and MCM, especially because of growing commonality in equipment and information needs. This will generate closer cooperation between MCM and

survey forces, which will be further enabled with the delivery of the OCV. In REA and TGMCM operations, there will be considerable opportunity to share facilities, equipment and personnel. In turn, this will necessitate much more integration of training and exercises in the future. These common doctrinal and operational links need to be understood in more depth to enable production of operating concepts which will reflect the likely capabilities and employment of the OCV. This is particularly pertinent as squadrons of OCVs may deploy for a specific operation, in which they will need to be multi-mission capable.

Enhanced Capabilities

The future OCVs may be seen by some as a means to expand existing Australian Defence Force (ADF) capabilities. In particular, they could be used for warfighting in the littorals for tasks involving amphibious manoeuvre, support to operations on land and in the air, and sealift. If space and facilities for embarked forces were provided, the OCV could be used as a flexible joint expeditionary asset. If the OCVs also had a flight deck and aviation facilities they could operate helicopters or unmanned aerial vehicles (UAV) in support of littoral tasks as well as patrol activities. The potential to embark a helicopter or UAV on the OCVs, or at least to operate aircraft from its deck would have significant potential to enhance the operational effectiveness of each OCV. Such aircraft would dramatically increase the ADF's current surveillance and response abilities and reduce the need to deploy large numbers of patrol boats. Both of these potential requirements, however, are only possible as design compromises and at considerable additional cost. Such capability enhancement options will be subject to further study, including cost-benefit analyses, before a decision on the way ahead can be made.

Concluding Thoughts

The OCV announced in the White Paper will introduce a concept new to the RAN, a common or variant hull capable of meeting the demands of the patrol, hydrographic and mine warfare missions by using modular combat capability. It will rely on advanced technologies, some of which are still under development, and which will lead to new more flexible operating concepts. The OCV is also planned to have a level of warfighting capability that will allow it to support or substitute for major combatants in some circumstances. The higher speed and improved seakeeping qualities expected from the OCV will enable it to accompany or precede task group major units to an area of operations and conduct environmental and mine warfare operations in support of the task group.

1. Department of Defence, *Defending Australia in the Asia Pacific Century: Force 2030*, Canberra, 2009, p. 73.
2. Royal Australian Navy, *Plan Blue 2006*, Defence Publishing Service, Canberra, 2006, p. 16.
3. RO Work, *Naval Transformation and the Littoral Combat Ship*, Centre for Strategic and Budgetary Assessments, Washington DC, February 2004, p. ii, <www.csbaonline.org/4Publications/PubLibrary/R.20040218.LCS/R.20040218.LCS.pdf> (27 April 2010).
4. Department of Defence, *Defending Australia in the Asia Pacific Century: Force 2030*, p. 73.

