

AUSTRALIA'S FUTURE SUBMARINE CAPABILITY

In the case of the submarine force, the Government takes the view that our strategic circumstances necessitate a substantially expanded submarine fleet of 12 boats ... a larger force would significantly increase the military planning challenges faced by any adversaries, and increase the size and capabilities of the force they would have to be prepared to commit to attack us directly, or coerce, intimidate or otherwise employ military power against us.

Defending Australia in the Asia Pacific Century:
Force 2030¹

The brevity of the above statement, taken from Australia's latest Defence White Paper, understates somewhat its momentous impact on the shape of our future maritime force. The Royal Australian Navy's (RAN) Future Submarine fleet will eventually be double the size of the existing fleet, by which time it will also constitute just over 50 per cent of the major combatant force. But numbers alone do not define the substantial capability gain conferred by this decision. Nor do they readily convey the significant effort required by the Navy and the wider Defence Organisation to realise the goal of an expanded fleet of submarines likely incorporating even more capability than the existing *Collins* class.



Well trained and experienced submariners will remain the most important factor for the Future Submarine capability

What else does the Defence White Paper call for?

The submarine decision resonates with several other statements in the Defence White Paper. The Australian Defence Force's (ADF's) primary force structure determinant is identified as the ability to deter or defeat an armed attack on Australia.² Furthermore, within the predominantly maritime strategy espoused, the capacity to establish sea control is a recurring theme. More particularly, the White Paper calls upon the ADF 'to be prepared to undertake proactive combat operations against an adversary's military bases and staging areas, and against its forces in transit, as far from Australia as possible'.³ Reference to the possible need for 'Australia to

selectively project military power or demonstrate strategic presence beyond our primary operational environment' is also pertinent, as is the assertion that 'Australia might need to be prepared to engage in conventional combat in the region ... in order to counter coercion or aggression against our allies and partners'.⁴

So, why submarines?

For as long as submarines have been operating, they have remained potent instruments of maritime power. They have contributed significantly to the preponderance of major naval powers and have lent smaller navies credibility. Though not invulnerable – it would be foolish to suggest otherwise of any weapon system – submarines operate in what continues to be the most opaque of mediums, the undersea environment, from where they can generate effects under, on, and beyond the sea. Technology is yet to render the sea transparent. This physical fact, coupled with their increasing stealth, affords submarines tremendous tactical initiative that readily translates to operational flexibility across the spectrum of conflict.

First and foremost, the submarine is able to operate undetected and conduct its activities covertly, enabling it to operate in waters where it may not be desirable or even possible to position other maritime forces. In areas where sea control is yet to be secured, the submarine can strike a potential adversary's maritime forces and, if necessary, land targets. Beyond denying the use of the sea to an adversary, the submarine has the capacity to contribute significantly to the achievement of sea control by destroying those enemy forces which might seek to dispute it. Indeed, inherent in this substantial offensive capacity is the deterrence offered by the possession of submarines, and their usefulness as force multipliers. While submarines might not offer a visible presence off troublesome shores in times of rising tension, their initial deployment signals national resolve and the promise of serious consequences should a potential adversary choose to open hostilities. The nexus between the tactical initiative, operational flexibility, and strategic value conferred by a capable submarine fleet is starkly evident.

What do submarines do?

Submarines excel in high-end warfighting tasks, such as anti-submarine warfare. A well-designed submarine equipped with superior acoustic sensors, processing systems, and torpedoes, and crewed by a highly trained team will succeed in anti-submarine missions, and may prove one of the few means by which an adversary's submarine capability can be neutralised in the opening stages of hostilities.

Submarines are also lethal anti-surface warfare assets and can inflict serious losses on the naval combat and logistic support fleets of an adversary. Recent exercise and real-world experience continues to prove the advantages that rest with submarines when operating against surface units. A successful hit from a single Mk 48

torpedo of the type employed by the *Collins* class will generally sink large surface combatants and quickly disable bigger ships. The addition of anti-ship missiles to a submarine's arsenal further increases their reach and lethality.

As foreshadowed in the White Paper, land strike will likely become another significant role for RAN submarines. A submarine specifically loaded for land strike missions could carry a substantial number of cruise missiles alongside a limited number of torpedoes. Submarine-launched land attack missiles might be among the first weapons fired in a campaign where the threat prevents the use of land-based air power, or other factors prevent ships from positioning for such a strike. Moreover, the ability of the submarine to clear a launch datum and exploit the undersea environment to evade may offer greater impunity against counter-attack.

Submarines are also capable of supporting small Special Forces units through covert insertion and extraction.

In addition to direct warfighting, submarines can consistently contribute to intelligence and surveillance efforts. They can collect acoustic, visual, communications and electronic intelligence that promotes our understanding of evolving threats and directly supports the conduct of operations by other forces.

The advent of secure, discrete, and high-data rate communications for submarines now also means that they can operate as part of a networked force. This does not imply that submarines need to remain a constantly connected node. Rather, the achievement of effects can be magnified if submarines are supported by the timely flow of information from the rest of a force.

What are the challenges?

The successful introduction of Australia's future submarine capability will face a number of substantial challenges. These challenges give rise to related commercial, financial, and schedule issues that will truly make the Future Submarine an acquisition program of national dimensions.

In the first instance, the development of a Future Submarine suitable for Australia's distinctive security requirements is inherently complex. Not least among the technical challenges, will be energy generation and storage needs. Will the Future Submarine possess air independent propulsion, for example? Our strategic geography alone imposes unique requirements on the range and endurance of a submarine expected to fulfil the roles and deliver the effects described above. Similarly, payload needs (coupled with the distance from Australia at which the Future Submarine could be expected to operate) generate additional demands on submarine size. The expected 25 year life of the Future Submarines also warrants careful consideration. To maintain their long-term effectiveness, they will clearly need to incorporate sufficient design margins for capability growth.

The planned expansion to a fleet of 12 highly-capable Future Submarines poses its own challenges, for this is not simply an acquisition program. While it is true that considerable effort will be devoted to the development, design and construction of the submarines, the RAN faces the equally challenging endeavour of rebuilding a

sustainable submarine force. Such a force must include the right number of trained and qualified people who will underpin the capability. Closely related are the training systems that will provide our personnel with the skills they need to exploit all the advantages offered by our Future Submarines. There must also be through-life support arrangements that will uphold fleet availability and maintain the capability edge essential to the effectiveness of the submarines throughout their operational lives. Furthermore, there needs to be adequate shore-based infrastructure to support the inherent dependencies of submarines.

Finally, and without suggesting that the Future Submarine capability will change any of the enduring principles of maritime strategy, the RAN will also need to continuously revisit its tactical instructions and doctrine. It will thereby ensure that it remains current as new technologies of consequence emerge from the Future Submarine development and the other advanced maritime capabilities announced in the White Paper.

None of these endeavours will be simple or straightforward, and it would be simplistic to think that the usual way of doing business will invariably suffice. In fact, it would be fair to say that past business practices have proved less than effective in maintaining our submarine capability. Meeting the challenges posed by the Future Submarine must therefore begin with a concerted and deliberate effort to remediate current shortfalls. The success of the introduction of the Future Submarine will hinge on the legacy of our future *Collins* class experience.

Conclusion

As one of the most ambitious acquisition programs to be undertaken by the ADF, the Future Submarine represents a substantial national investment in Australia's long-term security needs. Entrusted to the RAN, this key capability will also impose a substantial responsibility. Only by deliberately confronting the challenges posed will the Navy succeed in introducing the Future Submarine into service and sustaining it throughout its subsequent operational life.



- 1 Department of Defence, *Defending Australia in the Asia Pacific Century: Force 2030*, Canberra, 2009, p. 64.
- 2 *Defending Australia in the Asia Pacific Century*, p. 49.
- 3 *Defending Australia in the Asia Pacific Century*, p. 53.
- 4 *Defending Australia in the Asia Pacific Century*, pp 52 and 55.

