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## 'Noisy' subs actually quiet killers

Patrick Walters | April 05, 2008

**IT'S 30 years since the Royal Australian Navy first embarked on what was to become by far the most audacious and riskiest defence industry project undertaken in Australia.**

In 2008, Australians are yet to fully appreciate the strategic significance of the Collins class submarine project and how it revolutionised the country's naval shipbuilding sector, kick-starting the local defence industry.

Even with the benefit of hindsight, it still seems incredible that the Hawke Labor government in 1987 took the plunge and approved the construction in Australia of a wholly new class of six submarines, a decision that astonished our close allies.

In doing so they ignored the considered advice of senior defence bureaucrats, allied naval chiefs and leading Australian industry chief executives that a local build posed far too many risks and should not be attempted.

From the start, the project stirred controversy, beginning with the choice of the Swedish company, Kockums, as the submarine designer, and Adelaide as the construction site. The successes and failures of the Collins saga embodied many of the problems faced by Australian industry in the 1990s as it struggled to adjust to a more open, dynamic global economy. In their definitive study of the Collins class submarine project, to be launched by Kim Beazley next week, Peter Yule and Derek Woolner explode popular myths about what are now widely agreed to be the most lethal conventional submarines in the world.

The first is that the Collins class was a budget fiasco costing the taxpayer billions more than budgeted. When judged against a string of other major Australian defence industry projects, including the hapless Seasprite helicopters, the submarines are actually a standout.

As the authors note, the Collins class were built to within 4 per cent of the original contract price after allowing for inflation. When the extra money for fixing all the problems identified in the late 1990s is added, the project came within 20 per cent of the original 1986 \$3.9 billion contract.

Another myth is that the Collins were delivered years late, long after the original delivery schedule. The average delay turned out to be only 26 months, a formidable achievement for a new class of submarine. The Collins project stacks up extraordinarily well when compared with submarine-building disasters in the US and Britain over the past 20 years.

A further popular misconception is that the Collins boats are as "noisy as a rock band". As Woolner told Inquirer this week, there was no evidence for that oft-repeated refrain. The early boats did have some noise problems, partly due to propeller cavitation problems which, thanks to the Defence Science and Technology Organisation, have been rectified. Now they are acknowledged as being exceptionally quiet.

The original decision to build all six submarines in Australia was a huge leap of faith. That it happened at all was due principally to the crusading zeal of three men: Australian engineers Hans Ohff and John White, and a doggedly determined submariner, Graham White, the first head of the navy's new submarine project team in the early 1980s.

The pugnacious, mercurial, German-born Ohff, together with White, one of Australia's truly gifted industrial visionaries, stumped the country, convincing first the RAN and then sceptical state and federal politicians and local industry, that it could be done.

White and Ohff ran the losing German IKL-HDW bid for the new submarines but they both later went on to make enduring contributions to naval shipbuilding, Ohff returning in the '90s to manage ASC, the Collins constructor in Adelaide, and White running the highly successful Anzac frigate project at Tenix's Williamstown dockyard.

Woolner told Inquirer this week that nobody involved in the Collins project at the start fully comprehended how difficult the whole thing would be, from the design phase to engineering and construction, from project and consortium management to hugely complex systems-integration tasks led by the much-troubled combat system.

Right at the start, Swedish welding of the bow section of the first submarine turned out to be a major issue. Leading-edge research, including painstaking steel-alloy analysis led by DSTO, eventually solved the problem. Long-running tests on the subsequent Australian-made hull section welds have not revealed a single flaw. DSTO's scientific expertise proved fundamental to the overall success of the Collins project, including the Australian-designed and manufactured anechoic tiles that cover the external casing of the submarines.

The original combat system supplied by US company Rockwell never worked and had to be junked. Mooted solutions generated bitter divisions within the navy and the Defence Department and led to intense political debate inside the Howard government about the future of the project, with several ministers asking why it should not be scrapped altogether.

In 2001 the Howard government and then navy chief David Shackleton overturned the navy's recommendation that the German STN Atlas combat system be fitted to the Collins class.

In a strategic policy shift, the government turned to the US for help and a navy-to-navy agreement signed on September 10, 2001, opened an unprecedented era of bilateral co-operation.

The US partnership has since helped solve a range of complex technical issues affecting the performance of the boats.

Yule and Woolner stress the RAN and the Defence Department were slow to adjust to the reality that they, rather than a foreign shipyard, were now responsible for the submarines.

Adelaide-based ASC, 100 per cent government-owned, is now gearing up to build the \$8 billion air warfare destroyers, a task that could not have been attempted without the Collins experience. They are also the designated design authority for the Collins class boats, taking over that role from Kockums five years ago after the government acquired the Swedish firm's share of ASC. ASC hopes to design and build a new class of submarines for the RAN.

Woolner believes that, even with the experience of the Collins build, it will still be a high-risk endeavour.

"The next submarine should be a sensible extrapolation of the one that went before," he warns.

"You start off with your existing design and add areas where there has been considerable technological improvement. If you build on what is already there, I think you can make a success of it."

*The Collins Submarine Story - Steel Spies and Spin, by Peter Yule and Derek Woolner (Cambridge University Press), \$59.95.*

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