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SUBMARINE FORCE POSTURE

Introduction

In June 2011 the Minister for Defence commissioned an ADF Force Posture Review (FPR).

Force Posture, in the context of the review, was understood to be a multifaceted concept, embracing bases in their various manifestations, including home ports and Forward Operating Bases (FOBs), as well as operational activities such as port visits, training and exercises, familiarisation visits and other forms of engagement.

The terms of reference called for consideration on how the future force posture would support Australia's ability to respond to a range of activities including deployments on overseas operations and missions, support of operations in our wider region and practical engagement with Asia-Pacific and Indian Ocean countries in ways that help to shape security and strategic circumstances in Australia's interest.

The reviewers were asked to make recommendations in relation to basing options for Australia's Force 2030.

This month's SEA 1000 article will leverage off the initial work of the review to examine the issue of submarine force posture. It will revisit the roles and functions of our future submarine force and then comment on/supplement the FPR's initial recommendations. Finally, it will consider how a change in submarine force posture might impact on the 2009 Defence White Paper (DWP) requirements for our future submarines.

Strategic Context

Before sensible comment can be made on submarine force posture, the peacetime and wartime strategic context in which the force may operate and the roles and functions the submarines may be required to perform must be revisited.

Peacetime Roles and Deployment Locations

There are a number of peacetime submarine tasks which are sensitive to force posture.

Preparation-for-war activities include the conduct of training/tactical development with regional partners and at the other end of the spectrum, the conduct of ISR missions against potential future adversaries and countries of interest. These sorts of operations would see our submarines operating across a large area ranging from India to Japan to Hawaii (although typically with good will port visits at appropriate points throughout the deployment).

Submarines may also be required to participate in constabulary roles such as counter terrorism, anti-piracy, anti-smuggling and counter narcotic operations; all in and around the northern archipelago. Operations associated with the protection of coastal and offshore infrastructure might take place off the Pilbara, the Kimberley and in the Timor Gap.

Wartime Roles and Deployment Locations

There are a number of wartime submarine tasks which are directly impacted by our force posture.

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In the principal task of the ADF is to independently deter and, if that fails, defeat armed attacks on Australia. In the unlikely event that deterrence was to fail and Australia was subjected to an attempted or successful military lodgement, be it small or full scale, our future submarines would play a significant role in any response. Interdiction is the primary operational strategy for the ADF in such situations; stopping an enemy's advance or the crucial resupply of belligerent "lodgers". To effect this Australian submarines would almost certainly conduct anti-shipping operations in areas where the ADF did not have complete air or sea control, perhaps around Indonesian, Timorese and Papua New Guinean straits and territorial seas. They may also attempt to operate as ASW guards in these areas. It is likely that our submarine would also be deployed into forward Areas of Operations (AOs) close to naval ports and enemy logistic hubs to conduct reconnaissance, anti-shipping strikes, ASW and offensive mine laying. They may also be used for land strike on critical enemy infrastructure or to covertly insert Special Forces to do the same.

The second priority for the ADF is ensuring the security, stability and cohesion of Indonesia, Papua New Guinea, East Timor, New Zealand and the South Pacific Island States. It involves ensuring they are not a source of threat to Australia and that no major power could challenge Australia's control of the air and sea approaches to the continent by projecting force against us from bases in our neighbourhood; a modified Munroe doctrine. Many of the likely ADF tasks and functions in this scenario are unsuitable for submarines; protecting our nationals, disaster relief and humanitarian assistance. However, submarines would be able to assist in stabilisation interventions by covertly inserting and supporting Special Forces who can secretly conduct land based ISR and other tasks. The use of submarines for land strike in intervention operations is also a possibility. A regional war might involve similar operations to those found in the paragraph directly above.

The third priority, contributing to military contingencies in the Asia-Pacific region, involves ensuring stability and meeting alliance obligations in an area ranging from North Asia to the Eastern Indian Ocean. In many respects, even though it ranks third in priority, it is important because history has shown most of the conflicts Australia has been involved in have been of an expeditionary nature where we followed our globally engaged security alliance partners to war; hence we find ourselves currently engaged in operations in Afghanistan and Iraq. The DWP suggests, and few would argue, that strategic transformation in the Asia Pacific region is highly likely. This has the potential to create all manner of tension. There are a number of possibilities such as conflict over the Spratly Islands, on the Korean Peninsula, over Taiwan or perhaps between any of China, Japan, India, Russia and the US. The DWP says it would be premature to judge that war among the major powers has been eliminated as a feature of the international system.

China is a rising economic and military powerhouse in the region with growing assertiveness across political, diplomatic, economic and military fronts. China gets special mention in the DWP as one possible strategic consideration and therefore a discussion on the roles of Australia's future submarines in the context of a war between China and the US seems appropriate. Before doing so, however, the strategic picture must be painted for the reader.

As China grows, the US will and arguably is seeking to defend its hegemony against China's quest for influence in the region. The US is already strengthening or forming alliances and partnerships with India, Japan, Malaysia, Philippines, Russia, Singapore, Taiwan, Thailand, South Korea and Vietnam. As tension rises in the region, and against the backdrop of

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declining numbers of USN submarines as financial pressure takes its toll on the USN's order of battle, Australia may, as a result of alliance pressure, be urged to step up to the plate and supplement a coalition undersea order of battle to help counterbalance Chinese force development and operations. ISR patrols may be undertaken by Australian submarines on a regular basis, perhaps to the extent that Australian submarines might be forward based out of places like Guam, Kure or Singapore for long periods.

As the situation moved closer to conflict and beyond our submarines would probably be tasked in a couple of significant ways.

Subject to Australian Government sovereign approval, some of our submarines may continue to operate in the heart of the East Asian AO. These submarines could be employed conducting reconnaissance and offensive operations around the South and/or East China Sea, such as mine laying, land strike and anti-shiping/ASW roles in forward areas.



Figure 1 - China's Critical Sea Lanes (Source US DoD)

Australian submarines are also likely to be employed, along with other RAN and RAAF assets, to exercise control over the three major Straits, namely Malacca, Lombok and Sunda, through which Middle Eastern and African oil and resource trade flows to China (see Figure 1). Noting the likely reach of Chinese submarine forces in a future conflict, preventing them from breaking out into the Indian Ocean and Timor Sea would likely be another role. Staging for these operations could occur out of Cocos Keeling and northern Australian ports; places that fall well within the ADF's independent logistic support capacity.

Some have suggested that Australian submarines would or should be more fully engaged in the East Asian AO. This notion is contested for a number of reasons. Firstly, the strategic value of starving China of seaborne supplies in the context of a prolonged conflict is

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significant and shouldn't be understated. Secondly, there would be a substantial number of US and coalition submarines operating in the East Asian AO.

USN submarines would play their part with USN SSNs tasked with locating and destroying Chinese SSBNs and any Chinese SSNs attempting to protect them. USN SSGNs and SSNs would conduct land strike operations in the opening phase of the campaign and then shift to other tasks.

Other navies within or closer to the Asian strategic theatre would be called upon to lend undersea capability to the battle; countries like Malaysia, Japan, Singapore, South Korea, Vietnam and, not beyond possibility, Russia. These countries will all have capable navies with modern, competent submarine forces that have a home advantage with respect to short logistic support lines and understanding the East Asian AO. Supporting nation's conventional AIP submarines would initially concentrate on littoral mine laying and Special Forces operations and attacks on Chinese submarines leaving bases (near Qingdao, Lushan Shanghai, Wusong, Ningbo, Xiangshan, Dinghai and Hainan) before turning their attention, along with other USN submarines, to conducting attacks on Chinese naval assets.

It must also be appreciated that the commitment of too many Australian submarines in the East Asian AO may indeed compromise Defence of Australia operations at a later stage.

Finally, the ADF's fourth priority task of contributing to military contingencies in support of global security in distant theatres would see limited involvement by Australian submarines on account of the distances that are likely to be involved. Other air deployed assets are more likely to be utilised.

The strategic context described thus far maps in nicely with Australia's *Primary Operational Environment*, outlined in detail on page 51 of the DWP and shown in Figure 2. It is clear that Defence has thought the issue through.

Operational Logistics in the Strategic Context

In his book "Operational Warfare at Sea", the USN War College's Professor of Operations, Dr. Milan Vego, talks of the importance of operational logistics in the planning and execution of any military campaign. In fact, he argues that logistic support and sustainment are perhaps the two most critical factors for success in maritime campaigns or major naval operations.

He argues that without adequate and effective operational theatre wide infrastructure, a campaign or major operation cannot be logistically supported and sustained. Logistics considerably affects the operational reach of a navy.

Noting that Australian sea lines of communication are otherwise lengthy, FOBs can be fundamental in shortening the operational commander's logistic support lines – something that could mean the difference between success and failure in any sustained forward operation.

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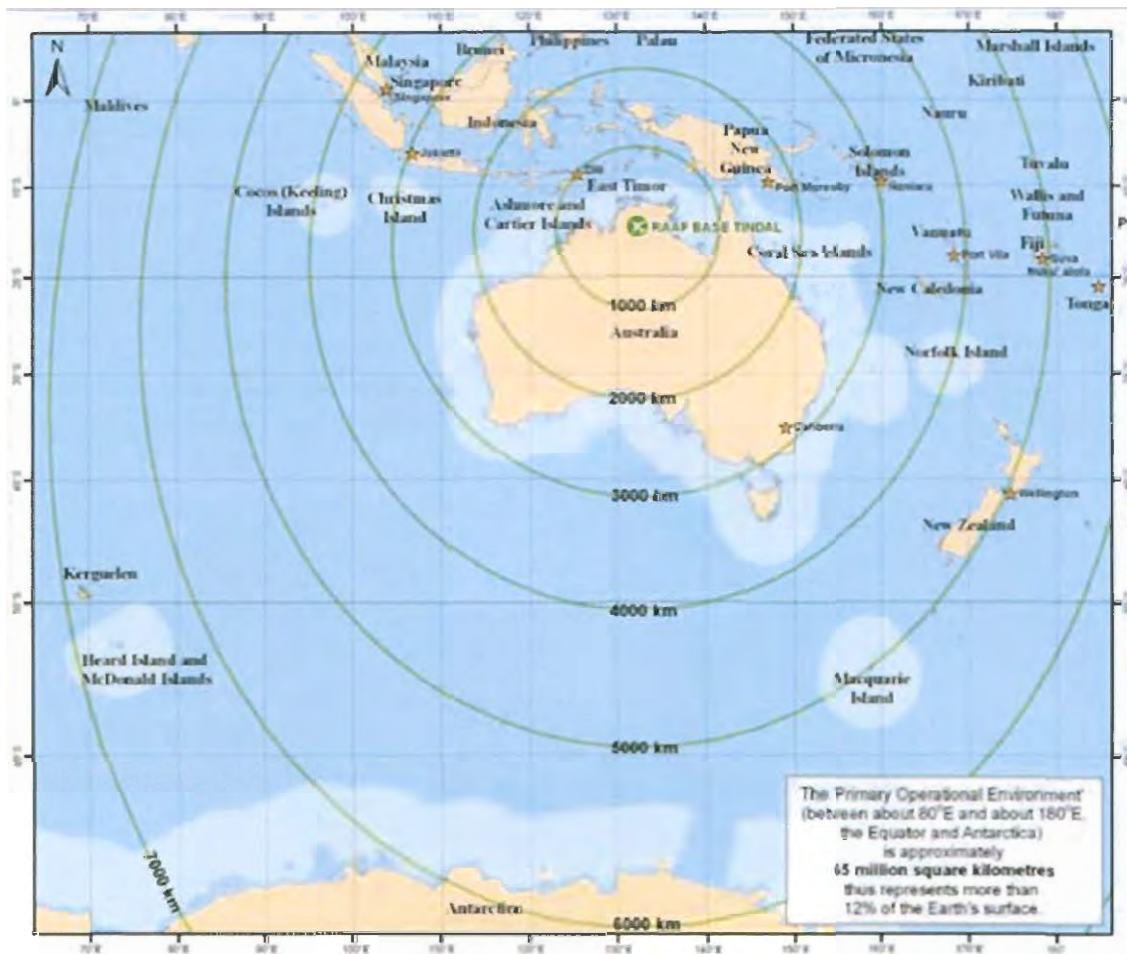


Figure 2 – Australia's Primary Operational Environment (Source: Defence)

Consistent with and complimentary to this theme is the use of submarine tenders, that is vessels with specialist submarine support capabilities that can be deployed to assist in forward and/or long term deployments. These vessels have specialist workshops such as machinery, electrical, battery, electronics, periscope, and weapon, along with medical facilities and other services such as shore supplies, refuelling and communications.

Those that argue against the reliance on FOBs and tenders do so on the grounds that such an approach would signal an operational commander's intentions with respect to the employment of submarines and that forward bases and tenders are vulnerable to attack. However, this is not necessarily the case. The mere fact that a submarine is active, or is even suspected of being active, in a particular region can deny the enemy the use of that area. This was almost certainly foremost in the minds of the British Government when, during the Falkland Island war, it announced the presence of submarines in the South Atlantic through the media, although the sinking of the ARA BELGRANO was an effective follow-up move.

It is accepted that FOBs may be vulnerable to enemy attack. Whilst operations from FOBs are undoubtedly feasible in peace time and in the lead up to war, it may not be possible as or after hostilities commence. Forward base unavailability risks can be mitigated by having a range of alternatives available. Submarine tenders assist greatly in this regard.

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In support of the submarine operations described, FOBs and tenders make a lot of sense. Irrespective of what solution one might favour with respect to our future submarines, we should agree and appreciate the military value of both in conducting distant operations. A point worth pondering is that the USN has submarines with considerable reach and yet they still make use of FOBs and tenders. As part of their expeditionary maintenance model, USS FRANK CABLE operates out of Guam and USS EMORY S. LAND operates out of Diego Garcia. Note that last year USS FRANK GABLE visited Hong Kong, Malaysia and the Philippines in support of US submarines whilst USS EMORY S. LAND visited UAE, Bahrain, India and Malaysia. This concept is not new to Australians; HMAS STALWART operated as a Destroyer Tender to support forward fleet operations.

FPR Progress Report

At this stage it is worth while looking at the FPR progress report recommendations specifically or loosely related to submarines. These recommendations include:

- Suggestions that whilst permanent Navy bases in the North West were not operationally necessary given the availability of bases at Perth and Darwin, but there was a case for Defence to pursue improved access arrangements at commercial ports such as Exmouth, Dampier, Port Hedland and Broome.
- Recommendations in relation to the upgrading of wharf and support facilities at Fleet Base West (HMAS STIRLING) with respect to major combatants. These recommendations made specific reference submarine, not only to Australia's futures platforms, but also to visiting US Navy submarines.
- Floating the idea of establishing an additional east coast fleet base in Brisbane for both the LHDs and the future submarines.

The latter two recommendations are relatively strategic and straightforward with respect to submarines and are not discussed further.

The use of Dampier, Port Hedland and Broome would present difficulties, although not insurmountable, for submarine Commanding Officers. The approaches to these ports are all relatively straightforward from a navigation perspective, albeit restrictive in the case of Dampier and Broome. Dampier and Broome are also relatively exposed from a weather perspective whilst Port Hedland is well protected. Exposure to large to extreme tidal ranges at all three of these ports is problematic. Wartime pilotage would also be problematic with all three – noting the need for relatively long (>2 hour) transits to an area suitable for diving from these ports and a submarines desire for covertness and their extreme vulnerability on the surface.

Exmouth is the more suitable option for submarine operations, particularly if "stop and go" in nature. Navigation in and out of Exmouth is relatively simple and the tidal shift is of the order 2 to 3 metres. Transit to a diving position is well short of an hour and the port is blessed with access to RAAF Learmonth, assisting with operational logistics. It is noted that the Northwest Coastal Highway between Perth and Exmouth is all-weather. The port's downside is its exposure to weather. Exmouth was used by the USN in World War II as a submarine replenishment FOB, code named *Potshot*.

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Figure 3 – S-80 Maximum Range from Exmouth (Source: Navantia)

Submarine tenders are not mentioned in the FPR progress report.

The FPR terms of reference require the team to consider the potential strategic and security role of Cocos (Keeling). Recommendations in the progress report have been restricted to upgrading the airfield to allow for P-8 operations. The use of Cocos Keeling as a submarine base has not received mention, but should (see inset).

FPR Impact on SEA 1000

The DWP suggests that our future submarine *will have greater range, longer endurance on patrol, and expanded capabilities compared to the current Collins class submarine*. It is this sentence that has provided the impetus for the advocates of a costly and risky unique design of future submarine.

Long transits and potentially short-notice contingencies in our primary operational environment demand high levels of mobility and endurance in the Future Submarine. The boats need to be able to undertake prolonged covert patrols over the full distance of our strategic approaches and in operational areas. The use of FOBs as suggested in the FPR and further expanded upon in this article relieves, to a large extent, the unique need. Submarine tenders should also be thrown into the mix. Such an approach pushes the 80 to 85% compliant MOTS submarine to 85 to 90%.

COCOS (KEELING) – A SUBMARINE FOB

The Islands and Their Strategic Significance

The Territory of the Cocos (Keeling) Islands is an Indian Ocean territory of Australia, located 1500 NM north west of Perth, 650 NM south west of the Sunda Straits and 530 west of Christmas Island. It is approximately midway between Australia and Sri Lanka and closer to Singapore than to the Perth.

The territory consists of two atolls and 27 coral islands, of which two, West Island and Home Island, are inhabited with a total population of approximately 600. Its total land area is 14 square kilometres (see Figure 4).

The climate is tropical. From March to November the South East trade winds prevail. From December to February a doldrums season brings calms interspersed with light variable breezes. During this period there is a danger from tropical cyclones that approach from the west.

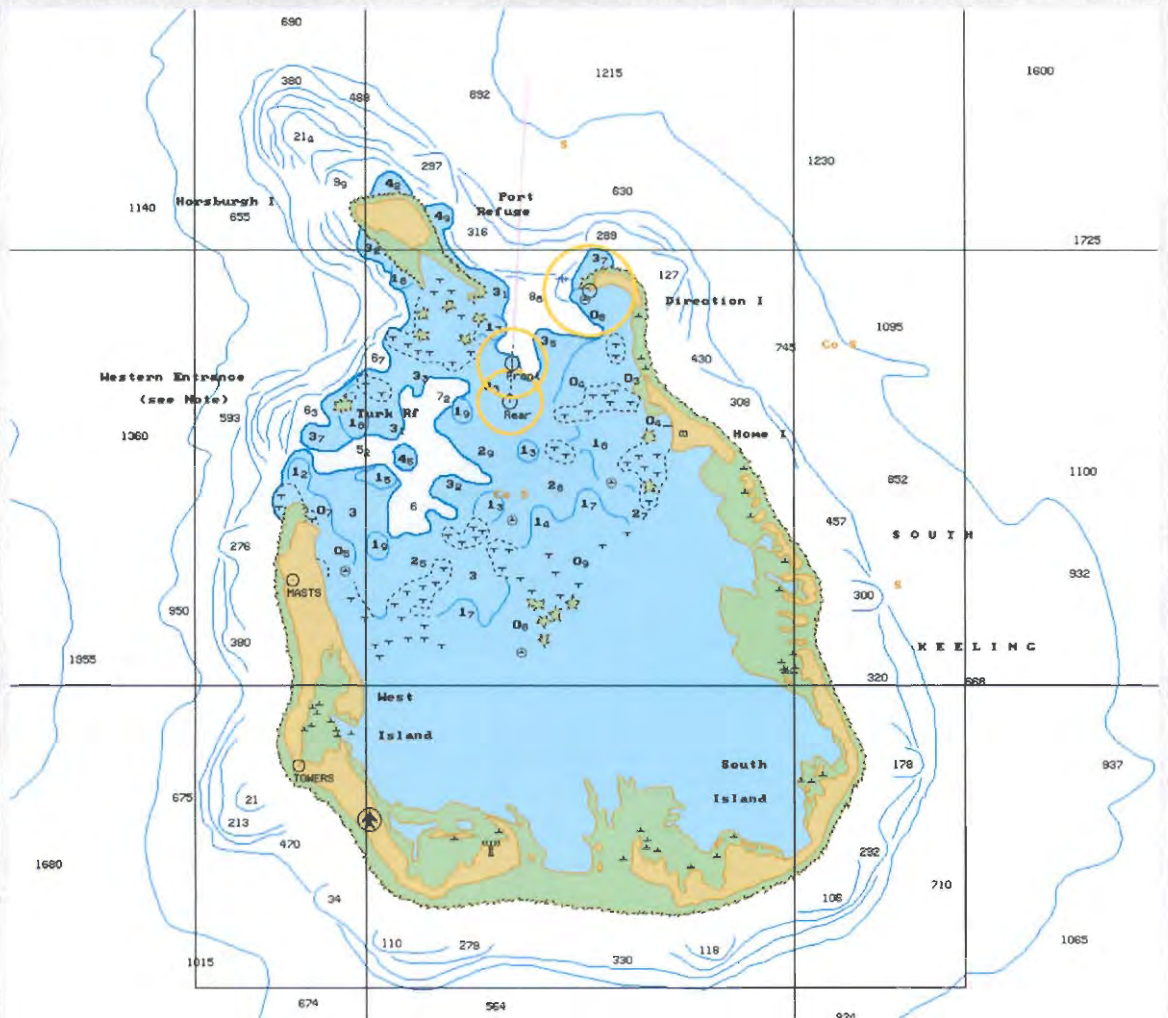


Figure 4 – Cocos (Keeling) Chart Overview (Source: Navigation Dynamics)

West Island hosts an airfield, built in 1945 to support Liberator bomber operations against Japanese bases in Malaya and Netherland East Indies. The runway is 2438 metres long. Virgin offers regular Embraer 190 flights from Perth (via Christmas Island). The Finance Department has funded limited

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repairs to the airfield in 2012, but this work will not allow P-8 aircraft to operate without significant restrictions. Fuel stocks and other facilities such as accommodation on the islands are limited and use of the airfield by the full gamut of air force aircraft and/or high tempo operations would require a major upgrade.

The port facilities are rudimentary. The central lagoon is very shallow and unsuitable for warships without deep dredging. Ships anchor in Port Refuge from where barges transfer cargo to West Island's newly constructed Rumah Baru Passenger and Freight Handling Facility and Home Island. As the name alludes to, these waters can be used to provide refuge for ships in severe weather conditions.

While long on the periphery of Australia's strategic considerations, they are of significant geopolitical importance and provide the basing potential with which Australia could magnify its influence.

They offer proximity to major shipping lanes, including potential chokepoints in the Malacca, Lombok, Sunda and the Makassar Straits. Loss to foreign influence of Cocos (Keeling) in wartime could, correspondingly, provide a base from which to target Australia's SLOCs and the economically vital north-west.

Military Use of Cocos Keeling

Well before the current FPR was commissioned, consideration of Cocos (Keeling) as an ADF FOB had occurred. A 1956 Defence Committee endorsed paper on The Strategic Basis of Australian Defence Policy concluded that "*Cocos Island should be held as an important forward base*". Ross Babbage, in a 1988 ANU Strategic and Defence Studies Paper suggested that Cocos would extend Australia's reach into the surrounding area for surveillance, air defence and maritime and ground strike operations. The Island could, in effect, serve as an unsinkable aircraft carrier and resupply ship.

Following the commissioning of a FPR there has been public discussion on the military use of Cocos (Keeling). ASPI's Policy Analysis Paper "*Who goes where? Positioning the ADF for the Asia-Pacific Century*" suggested "*visiting US force elements will probably rely on existing ADF facilities, with the possible exception of additional infrastructure that might be required for air operations from Australia's offshore territories at Cocos and Christmas islands—which could provide better access for endurance-limited airborne platforms operating over the strategically important shipping lanes of Southeast Asia*". A recently released Air Power Australia paper on "*Basing Infrastructure Considerations in the Defence of Australia's Indian Ocean Approaches*" points out, amongst other things, the Islands value as a diversion runway for long range maritime operations deep into the Indian Ocean.

In late November 2011, Australian Defence Minister Stephen Smith confirmed that the FPR would consider the future strategic role of the Cocos Islands. He suggested that while no formal proposal existed, Cocos (Keeling) Islands could, in the future, host joint US-Australian naval and air forces. The plan has significant merit and would dramatically increase Australian power projection on the long-neglected Indian Ocean flank. While requiring substantial infrastructure changes, the Cocos bases could potentially serve to meet joint strategic objectives in the region.

Future Directions International commenting on the Minister's suggestions said "*Adjustments to ADF posture, such as the potential use of the Cocos Islands, are not brash arbitrary developments; they are consistent with Defence's 2009 White Paper, the FPR and Australia's commitment to the ANZUS Treaty.*"

The FPR progress report acknowledged that Cocos (Keeling) Islands have significant military strategic value as a staging location for maritime air patrol and surveillance activities.

A recently released Air Power Australia paper on "*Basing Infrastructure Considerations in the Defence of Australia's Indian Ocean Approaches*" argues this should be extended to strike aircraft.

Submarine FOB

Contingent on an air force base being set up on Cocos (Keeling), a submarine FOB is certainly

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feasible. The FOB could be used as a "stop and go" location for refueling, replenishing munitions and personnel/crew swaps.

A couple of options exist for such a FOB. The FOB could be constituted as, in its simplest form, a set of submarine moorings in Port Refuge supported by resupply and refueling lighters based at West Island. A more extensive configuration might involve construction of a wharf, as shown in *Figure 5*, and submarine sheds supported by a bare base facility on Direction Island. A tug would also be required. Such infrastructure is certainly not beyond the bounds of modern construction capabilities.

Bulk material/stores could be transported from the RAAF base using the existing Rumah Baru Passenger and Freight Handling Facility and ferrying arrangement. As an alternative, Air Power Australia has suggested the construction of a "ring road" causeway arrangement around the island and the laying of a set of six or eight inch fuel and potable water pipes from West Island to Direction Island.

It is noted that West Islands fuel depot would need to be upgraded to allow for the storage of LOX, methanol/ethanol or hydrogen such that AIP systems could be replenished.

Navigation in and out of Cocos (Keeling) area is relatively simple (see *Figure 5*).

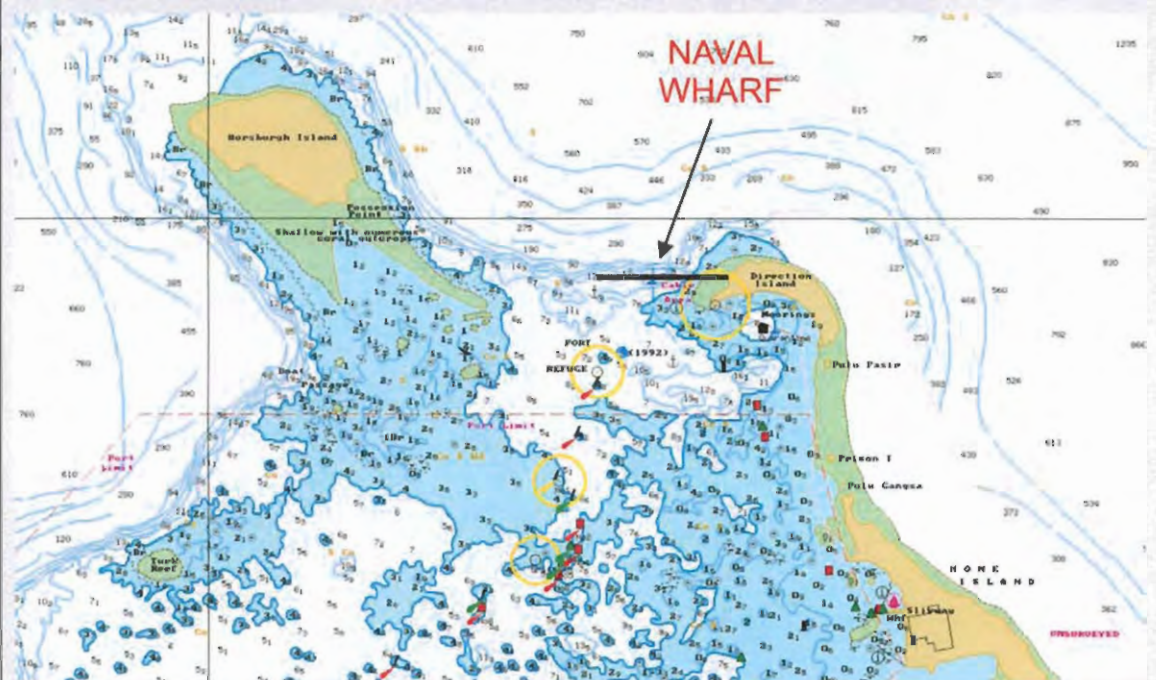


Figure 5 – Port Refuge Naval Wharf (Source: Navigation Dynamics)

The disposition of Direction Island and general lack of population on the atoll means that operational security would be excellent. The significant drop off to deep water immediately north of Direction Island, with water depth that allows for a submarine to remain dived until, literally, five minutes before coming alongside or mooring. Arrival and departure of submarines could also be supported by locally based P-8 aircraft.

Tidal shifts of the order 1 to 2 metres are manageable. Exposure to weather represents the only real negative but would, in general, not be a show stopper.

Operations out of Cocos (Keeling) would take two weeks off an, otherwise, round trip to HMAS STIRLING make it a useful proposition in both peace and in time of conflict. The facility could also be used by other naval vessels.

Added Strategic Dimension

Cocos Keeling provides an added strategic dimension to Australia's defence posture considerations.

In addition to the basing of air force assets, the islands should also be considered as a useful sleeper FOB for our future submarines.

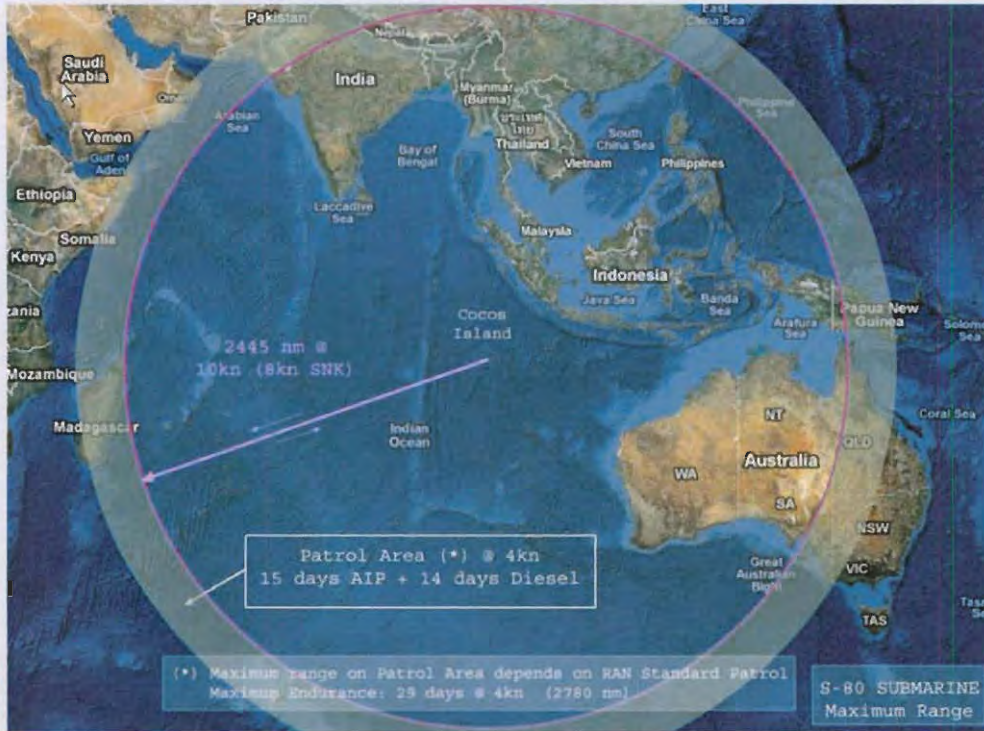


Figure 6 – S-80 Maximum Range from Cocos (Source: Navantia)

Note: The author visited the islands in January as part of his research for this article.