

Putting the 'national' into national security: Australia's maritime surveillance capability

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Introduction

In March of 2009, the Department of Defence announced that plans to partner with the United States Navy (USN) on the development of a broad area maritime surveillance (BAMS) version of the *Global Hawk* unmanned aerial vehicle (UAV) had been shelved.¹ Amazingly, the media release was followed sixty days later by another that extolled the virtues of plans to acquire seven high-altitude long-endurance UAVs that would 'significantly enhance Australia's intelligence, surveillance and reconnaissance capacity'—and noted that *Global Hawk* is a contender.²

In practice, what happened was that plans to acquire *Global Hawk* (the USN's solution of choice for the unmanned component of its BAMS program) have been pushed out from around the middle of the decade to sometime through the next decade. (The Defence Capability Plan notes that a proposal will be developed for government consideration 'beyond 2019'.)

The reason given for the deferral of this acquisition was that

'Introducing such an advanced new aircraft at this time would have caused incredible workforce pressures on the Australian Defence Force, particularly given the requirement to transition the Air Force's AP-3C Orion fleet to a new manned surveillance aircraft in the same time period'.

From the point of view of Air Force and Defence, this may have been a reasonable prioritisation of effort. But in any case, it is worth considering whether this applies in terms of the overall *national* ability to collect intelligence, surveillance and reconnaissance information in our expansive maritime domain.

Why do ocean surveillance?

The ability to know what is going on out in the open ocean is important for a number of reasons. As well as traditional military threats, activities such as people smuggling, drug running and illegal fishing are contrary to the national interest. The problem is that the sheer expanse of the ocean provides natural cover for the perpetrators of unlawful activities or for lawful activities that

might offer intelligence value, such as the movements and activities of foreign navies. The haystack is large and the needles are small—and mobile.

At the top end of threats to Australia's interests are military activities by other states. The ability to control our air and sea approaches has been a constant of Australian government strategic thinking for decades. Given our geography, that is unlikely to disappear as a key requirement, despite occasional changes of emphasis between regional and more expeditionary approaches to Defence strategy. Defence will therefore always be required to maintain an ocean surveillance capability, as well as the ability to respond where necessary to interdict aircraft or ships in our approaches. The wide area surveillance capability must complement an ability to watch specific locations such as ports, airfields and military installations.

But the utility of wide area maritime surveillance isn't limited to warfighting applications. A wide range of Australian Government agencies, including Customs, Coastwatch, the Australian Federal Police and the Australian Fisheries Management Authority, have requirements for surveillance data. Each has its own operational requirements, and each requires actionable data that can be processed in short timeframes to allow for further investigation and possibly interceptions and, if required, apprehensions to occur. Given the limited number of response platforms (surface vessels or manned aircraft that can act on sightings or other intelligence information) that these agencies can deploy, the ability to use accurate and timely surveillance information to cue other activities can greatly increase their effectiveness and efficiency—surveillance is a 'force multiplier' for a wide range of players.

Some of the non-military activities in Australian waters that are of interest to Australian authorities are very well organised—the people smuggling syndicates being perhaps the most notorious example. But there are also contraband smuggling operations, at least one of which was suspected to be a state-sponsored activity. In April of 2003, the 4,000 tonne North Korean owned vessel *Pong Su* succeeded in delivering a substantial quantity of heroin in Victoria before being pursued into international waters and subsequently apprehended by Australian authorities. Similarly, while most of the 'headline' cases of people smuggling have occurred in the northwest, there have been a number of cases on the east coast.

Another enduring problem is illegal fishing, which has been going on in Australian waters for many generations. In fact, the first ever Royal Australian Navy 'special cruise' in northern waters (corresponding to what we would today term a patrol boat mission) was by HMAS *Gayundah* in 1911. It found Indonesian fishermen taking trepang and trochus shell from our northern waters. In 2010, the descendants of those fishermen are pursuing the same catches. However, these days, as well as the traditional small wooden vessels, larger so-called 'ice boats' capable of holding up to 40 tonnes of fish sometimes operate in Australian waters. Further afield, there have been well-publicised encounters with illegal fishing activities in the southern oceans, including waters adjacent to Australia's Antarctic Territories.

Manned and unmanned wide area surveillance

Aircraft are an important component of our national ocean surveillance effort. (Others include satellite systems and the Jindalee over-the-horizon radar network—JORN). Aircraft are much faster than ships and have the benefit of altitude, which increases their effective horizon and hence their ability to surveil large areas. Because of those factors, aircraft are much more capable platforms than ships for wide area surveillance. They can carry a range of sensors and can be diverted relatively rapidly to conduct surveillance or to investigate a detection made by other means.



Figure 1. Australia's maritime zones.

Manned aircraft can also close quickly for 'on the spot' visual identification and, if necessary, they can take physical action such as dropping rafts and supplies or, in military actions, engaging ships or submarines with weapons. The Air Force currently operates nineteen AP-3C *Orion* aircraft, which are fitted with sensors and weapons for these tasks. However, manned aircraft are limited by platform and crew endurance and can't provide 24/7 surveillance coverage of areas well away from their bases without a prohibitive rate of effort.

On the other hand, the flight duration of UAVs is limited only by fuel load. Being lighter in construction than manned aircraft, they achieve far greater fuel economy and thus high endurance. UAVs have been described as an example of smart technology that is best suited to dumb tasks. A maritime patrol UAV with a radar fit could patrol an area of ocean and relay its data back to the operating centre, where the data could be combined with other sources. The *Global Hawk* can remain airborne for thirty-six hours. This endurance would allow surveillance flights that circumnavigate the entire continent *and* dwell for up to ten hours in an area of interest. Alternatively, a single aircraft could have surveilled the entire tsunami-affected coastline of Southeast Asia and India in a single mission. (See Figure 2.)

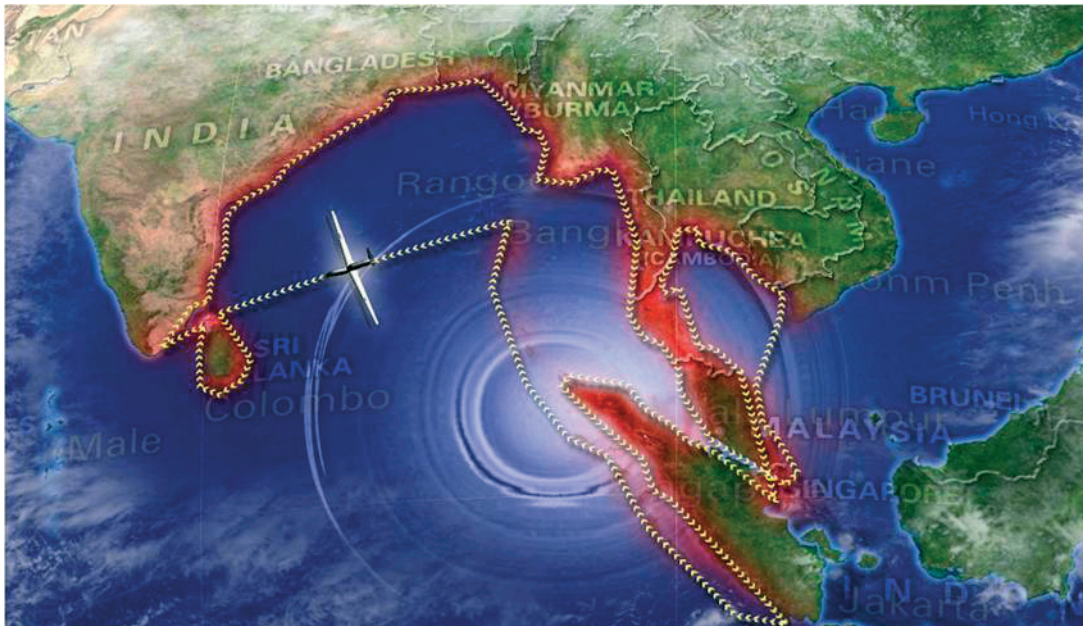


Figure 2. Schematic representation of a single *Global Hawk* UAV mission that surveys the entire Asian coastline affected by the 2004 Tsunami. (Graphic courtesy Northrop Grumman)

Like most sophisticated capabilities, large UAVs are not cheap. The *Global Hawk* unit procurement cost is US\$114 million.³ (However, that compares to US\$200 million for each P-8.) And the operating costs are substantial—despite carrying no onboard crew, UAVs do not do away with the need to have people involved in monitoring and analysing the data collected. For sustained operations, the crew fatigue factor is transferred to the personnel required to support the mission. In fact, given the duration of the missions, the overall personnel requirement can be significant. As well, UAVs require support infrastructure, reliable communications links and ground support as well as trained personnel to monitor and analyse their output, all of which add to the total cost of the capability.

Both the USN and RAAF envisage using a combination of manned and unmanned aircraft to cover the suite of maritime patrol tasks. Table 1 shows an indicative breakdown of the roles. Clearly manned and unmanned aircraft are complementary systems. The strength of unmanned aircraft is in the surveillance, search and intelligence collection missions, where persistence is extremely valuable. Manned aircraft can perform the same tasks, but not as efficiently (or for as long), but they are able to perform a range of warfighting tasks as well. (Future developments of unmanned aircraft might adapt them for more warfighting roles as well.)

A look at the tasks in Table 1 quickly reveals that the *unique* roles for the manned platform are largely confined to Defence's warfighting role—with the exception of search and rescue response. Because of their ability to contribute to the overall surveillance picture, there is little doubt that a long-endurance UAV would provide a whole-of-government benefit. The mechanism for sharing the collected information already exists. Currently, surveillance data is provided to non-Defence agencies through the Australian Maritime Identification System (AMIS) hosted by the Border Protection Command (BPC) which brings data from Defence and other agencies together. The development of AMIS was a very positive step and greatly increased the data sharing capability across government. In particular, it allows the non-Defence agencies access to information collected by ADF platforms and from allied systems.

Table 1. Indicative breakdown of roles and characteristics of manned and unmanned maritime surveillance aircraft

Manned aircraft		Shared roles	Unmanned aircraft	
Characteristics	Tasks		Characteristics	Tasks
Hardened sensor suite	Wide area surveillance and search	Detect ships	Long-dwell sensor suite	Wide area surveillance and search
Cueing for offboard and own weapon systems	Anti-sub search, track, engage	Track and identify ships	Modular sensor packages	Sustained intelligence collection
Weapons payload	Anti-ship engage		Data sent offboard for processing	Network node for data relay
Onboard data processing	Intelligence collection		No weapons	
Can drop rescue equipment and supplies	Search and rescue		High altitude	

Putting the 'national' into national security

The past decade has seen a considerable evolution in Australia's thinking about national security. The trend has been towards a wider view than the traditional military-driven one and towards a more whole-of-government approach—as embodied in the establishment of a National Security Adviser (NSA) position and Office of National Security in the Department of Prime Minister and Cabinet. An associated move is the establishment of a national security budget, although to date it has amounted to little more than an aggregation exercise, with little or no change to the underlying budgets of the various agencies and departments involved.

One of the potential advantages of a holistic approach to national security is that cost-benefit decisions can be made based on the overall national benefit of a program, as opposed to the relatively narrow view of an individual portfolio. As discussed earlier, there are many stakeholders involved in the national surveillance effort. But none of them have an acquisition budget anything like the Defence capital investment program budget. For comparison, the 2010–11 allocation for capital equipment for Defence is \$7.93 billion (out of a total Defence budget of \$26.90 billion), while the *total* budget—most of which is the cost of operations—of Customs and Border Protection for the same period is \$1.64 billion.

A consequence of this disparity is that agencies outside Defence do not have the wherewithal to acquire and operate technologically advanced systems. Despite the fact that various non-Defence players would benefit significantly from the enhanced surveillance capability that a platform like *Global Hawk* would provide, no-one else has the funding line to acquire it and Defence doesn't rate it highly enough in priority to acquire it any time in the next decade. It is far from clear that this is the best solution in the national sense—the government has priorities other than defence.

The setting up of BPC by the previous government was a sound move that allowed for a much more holistic approach to the management of surveillance information and resources. However, the BPC remains beholden to Defence for many of its resources (and its senior officer) and does not have the budget to acquire expensive new capabilities.

With the addition of the NSA to the government's portfolio of players, it is time to think about taking some further steps. The NSA should, as a first step, review the overall requirement for surveillance and response in Australia's maritime domain. If the business case exists for an expansion of capability on a timeframe different from the current Defence plans, then government should take a close look at the possibility of diverting funds from Defence (or from elsewhere) to build the *national* capability—and to have it managed by whichever agency is best placed to do so.

While it seems 'natural' for large UAVs to be managed by the RAAF, the possibility of acquiring a 'turn-key' contractor-operated solution should not be ruled out. Similarly, there are other surveillance assets that are managed by Defence for largely historical reasons—such as the JORN radar network. There seems to be no compelling reason for JORN to remain in the RAAF operational hands. Similarly, the 2009 Defence White Paper's surveillance satellite system will have applications well beyond Defence.

There are precedents for multi-agency organisations being pulled together to meet national objectives. As well as BPC, other examples include the National Threat Assessment Centre set up in 2003⁴ and the Cyber Security Operations Centre announced in the 2009 Defence White Paper.⁵ Consistent with this approach, the surveillance systems discussed above could collectively form the capability of a National Surveillance Office (NSO), staffed with personnel drawn from the various government players (including Defence) and by contractors as required. There are various organisational options for housing an NSO, with headquartering within the BPC being one choice (which would be consistent with BPC being responsible for managing surveillance data). But the important point is to have the NSO ultimately answerable to the NSA and with access to an acquisition budget that is large enough to acquire the sorts of systems discussed above.⁶

Conclusion

Australia is always going to have difficulty in keeping watch on a vast area of ocean and a long coastline. We are a nation of only 22 million people, which means that the resources we can throw at the problem will be commensurately small. We have to accept that we will never manage to seal our maritime approaches against unwanted incursions, or prevent or respond to all illegal activity.

But we can increase the effectiveness of those efforts through better management of the national capability. Steps taken through the last decade have greatly improved the co-ordination of effort and sharing of surveillance information across government. But the equipment side of capability continues to be managed (for the most part) in agency-based stovepipes. Defence has the lion's share of the procurement budget and it will, rightly, continue to invest in platforms and systems that best suit its particular requirements. It is time for the government to take a broader look at its wider policy aims—and to allocate resources accordingly.

Endnotes

- 1 <http://www.defence.gov.au/minister/Fitzgibbontpl.cfm?CurrentId=8829>
- 2 http://www.defence.gov.au/whitepaper/mr/42_ANewEraUninhabitedAircraftOperationsAirForce_.pdf
- 3 Figure taken from *Defence acquisitions: Assessment of selected weapons programs*, United States Government Accountability Office report GAO-10-388SP, March 2010.
- 4 The NTAC is a centre within ASIO that allows staff from ASIO, the Australian Federal Police, the Departments of Foreign Affairs and Trade and Transport and Regional Services and the intelligence community to work closely together on terrorism-related issues. A Parliamentary Library brief is at <http://www.aph.gov.au/library/pubs/rn/2003-04/04rn23.pdf>
- 5 http://www.defence.gov.au/whitepaper/mr/51_CyberCapabilityFixed.pdf
- 6 In order to avoid duplication of resources across government, the Defence Materiel Organisation could be co-opted to provide professional project management services to the NSO.

About the Author

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