

Aspiring to the world's smartest border patrol

After modernisation as part of the current 'Sentinel' project, the Border Protection Command's civil operated 'Coastwatch' system will be the first in the world to have a fully integrated digital maritime patrol aircraft capability directly feeding surveillance data into Canberra's National Surveillance Centre.

■ Trevor J Thomas/ADELAIDE

On 3 March 2006, the Australian Customs Service signed a contract with Surveillance Australia (a subsidiary of UK Cobham plc-owned National Air Support), to deliver a twelve year, \$1 billion inshore/offshore air-based maritime surveillance contract - known as the 'Service A' component the Civil Maritime Surveillance (CMS04) project.

Now referred to as project 'Sentinel', CMS04 also sought the modification, to a common standard, of six Bombardier Dash 8-202 and four larger Dash 8-315 aircraft, along with measures to give each aircraft longer range.

Modifications to the Dash 8s will provide them with a completely new mission system, sensor and communication suite, designed, installed and integrated by National Air Support (NAS) itself.

Components include: an L-3 Wescam MX15 Electro Optic and Infrared sensor turret (to provide visual identification over significantly improved distances); and a Raytheon 'SeaVue' digital radar, with the full suite of imaging modes for greater detection distances against small targets in high sea states.

Also equipping the upgraded aircraft are Italian-based Galileo Avionica-supplied Surveillance Information Management (SIM) capabilities (ie: to manage surveillance sensors & data handling), plus an 'Inmarsat' high bandwidth Satellite Communications System.

Outside of the current upgrade, the NAS Dash 8s will still retain considerable growth capability to address future customer requirements. Additional sensor items which might be added to the CMS04 enhanced mission system in the future include pollution monitoring equipment, and electronic support measures.

The SIM will data link the 'Sentinel' Dash 8s to Border Protection Command (BPC) control centres and the objective Australian Maritime Identification System (AMIS), to be generated by the Australian Maritime Information Fusion Centre (AMIFC).

The construct aims to feed real-time surveillance data into the AMIFC for unprecedented access and control over data collection. The digital feed will be a crucial element of the AMIS objective of establishing comprehensive Maritime Domain Awareness (MDA) over the vast expanse of Australia's offshore area.

NAS says it is the first Australian organisation, defence or civil,

to undertake such a complex aircraft and mission system modification in-house.

The breadth of activity being undertaken is normally only associated with projects to upgrade military platforms, and undertaken by large overseas Defence companies, or industry strategic alliances such as the P3 'Accord' formed between the Commonwealth, Tenix Defence, Lockheed Martin and EADS-owned Australian Aerospace. These firms are providing 'life of type' support to the RAAF's AP-3C 'Orion' long-range maritime patrol fleet.

The 'Sentinel' venture is complex and potentially high risk for Adelaide-based NAS, given the challenge of managing the necessary evolution from the conceptual nature of the proposed system, through the design process, to prototyping, adapting components for volume production, testing and acceptance of the aircraft and associated mission system and sensors.

NAS is contractually required to provide a minimum of eight of the 10 Dash 8 aircraft modified to the new surveillance system configuration by 1 January 2008. Key milestone deliveries so far undertaken include: Aircraft #1 (delivered in Darwin on 1 February 2007); Aircraft #4 - the first Dash 8-300 - was delivered on 21 July; and Aircraft #6 was delivered at the close of September.

The delivery schedule has enabled 'Coastwatch' to retire (21

September, in Darwin), the first two (of three) shorter range Reims F406 aircraft (equipped with SV-1022 radar and night vision goggles), and six visual surveillance-only Pilatus Britten Norman 'Islander' aircraft. Over 12 years, these two aircraft types alone have conducted nearly 8,500 flights over the Australian border, logging nearly 25,000 flight hours.

NAS officials told ADBR the company was on track to deliver nine aircraft by the close of 2007, albeit retaining an internal company objective of delivering all ten. While acknowledging this might be somewhat of a 'stretch' target, three months out from the deadline, there is confidence all ten upgraded aircraft can be delivered, subject to some subcontractor deliveries.

National Air Support's carriage of the Dash 8 aircraft upgrade also provides a useful benchmark for the Department of Defence when reviewing its own experiences with major platform upgrade programs. In the past, these had often been delivered late, and millions of dollars over budget.

Comparing the experience of project 'Sentinel' with similar Australian and United States Programs is quite sobering. For example, the upgrade of the P-3C 'Orion' fleet (to AP-3C standard) a number of years ago took almost seven years, and suffered considerable schedule delay and cost increases.

The US Coast Guard/Department of Homeland Security's Project 'Deepwater' provides yet another example, in particular the maritime patrol aircraft (MPA) acquisition. The 25 year/ US\$24

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SELF RELIANCE IN MARITIME SURVEILLANCE: Adelaide-based National Air Support takes stock-standard Dash 8s (far L) and undertakes substantial modifications (L) to incorporate new digital sensors and communications equipment. To prove its CMS04 design concept and integration approach, a full test & integration laboratory was established (R), while NAS engineers also worked out a unique racking system (far R) for fitment within the luggage compartment at the back of the aircraft to accommodate all the new hardware.

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BORDER SECURITY - Success at sea as interagency approach pays off?

In one month during early-2006, border surveillance assets directed by the Canberra-based Border Protection Command - formerly the Joint Offshore Protection Command - logged 365 sightings of larger, motorised illegal Foreign Fishing Vessels in the Gulf of Carpentaria alone. In 2007, in the same month, officials have reported only 36 sightings, consisting of ten separate vessels, with six being apprehended.

■ Canberra Bureau Report

The dramatic downturn in illegal Foreign Fishing Vessels (FFVs) operating within Australia's northern waters in recent times can be attributed to many things, from the rising price of fuel on extended voyages eating into fishing profits, through to a range of inter-Governmental agency efforts in FFV source countries to deter illegal fishermen, capped off by Australia's increasingly hardline border enforcement response.

The Minister for Fisheries & Conservation, Senator Eric Abetz, confirmed 31 August that the latest six month 'Illegal Fishing Update' presented to northern State and Territory fisheries ministers had confirmed a "dramatic collapse in incursions of illegal foreign fishing vessels in 2007."

For the six months to end-June, the Update is said to have concluded "there were just 287 sightings of motorised illegal foreign fishing vessels." According to Abetz, between the financial years 2005/06 and 2006/07, sightings of illegal vessels "declined by nearly 60% ... despite a 10% increase in aerial surveillance, when compared to 2005/06."

Irrespective of the fall in sightings, 44 vessels have still been apprehended and destroyed this year, with 101 persons (50 masters and 51 crew members) prosecuted for fishing offences. Significantly, 44 of those charged were recidivists (ie: repeat offenders).

Despite a range of Government initiatives to date (along with Opposition hounding to in-

crease border protection surveillance and response capabilities), there has only been a relatively limited boost to such capabilities in the past 12-24 months.

As previously noted (*see article page 6*), initial increments in the northern presence effected by the 'Armidale'-class Patrol Boats (ACPBs) were neutralised following problems experienced with their introduction into service.

To this must be added the embryonic state of new Border Protection Command (BPC) tools, such as the Australian Maritime Identification System (AMIS) - *see article page 10* - and the introduction into service of the new 'all-digital' project 'Sentinel' fleet of Customs 'Coastwatch' Dash 8 maritime patrol aircraft (MPA).

Given the first MPA was only commissioned in mid-February 2007, the progressive availability all these new surveillance assets (or lack of, in the case of the 'Armidale' patrol boats), cannot fully be credited with achieving the FFV downturn. There must be more to the story.

FFV deployment prevention work conducted by the Department of Foreign Affairs and the Indonesian government since early-2006, is also regarded by officials as having been highly successful. Incentive programs to help fishermen avoid Australian waters, and education programs focused on the risks associated in terms of arrest and confiscation of vessels, appear to have made their mark when combined with market influences, such as increasing long voyage overheads.

Still, the ever-changing economic environment that motivates illegal fishing might see a sudden resurgence in activities off Australia's northern borders, should local Indonesian fish stocks become depleted (due to over-fishing or climate change/pollution effects), and/or population growth sees demand for fresh fish increasing.

This perhaps explains the Australian government's recent highly public toughening of border patrol measures, including Defence Minister Nelson's confirmation 23 August of the firing upon an illegal FFV by a Royal Australian Navy patrol boat. It still begs the question, in an election year, as for whose benefit (the Australian public or foreign fishing vessel source countries) the new crackdown is being stage managed.

Some doubts have also been raised as to the real quantum of the threat. The large number of sightings reported in northern waters of illegal FFVs was recently questioned by the BPC, in turn utilising new CSIRO wildlife sightings assessment methodology.

While the BPC logged 13,000 documented FFV sightings in 2005/06, many of these are considered to have been repeat sightings of the same vessel, on the same intrusion. Applying a modified version of the CSIRO's mathematical model to the aggregate of total sightings on the worst day in 2005/06, officials now consider there were actually only 40 illegal boats operating in Australian waters.

Methods adopted by the government in recent years to patrolling the Australian maritime border have been highly contentious, in particular, the approach taken to policing and handling unauthorised asylum seekers. The zero-tolerance approach to so-called 'queue jumpers' and the 'Pacific Solution' devised to accommodate their numbers, whilst highly costly, has nevertheless also seen a massive drop off in attempted landings.

Still, the Border Protection Command has recently warned government that 'people smuggling' networks are still in place, and given such activities are a highly profitable yet dangerous business, run the risk of being relaunched at any sign of a lack of resolve in the Australian border protection effort. **ADBR**

'Sentinel' - from p13

billion 'Deepwater' Integrated System contract - awarded to a partnership of Lockheed Martin and Northrop Grumman - includes a requirement for 36 HC-144A medium-range surveillance MPAs (EADS CASA CN-235-300s), and an MPA modification similar in scope to the 'Sentinel' Dash-8s. News from the US is that the HC-114A has been extensively delayed, from delivery of the first 12 in 2006, to first three in 2008. Final delivery (due in 2012) has been pushed back to 2027, while costs are said to have increased by 33%. **ADBR**



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