

RESPONSES TO ISSUES ARISING FROM EVIDENCE RECEIVED BY THE
JCPAA INQUIRY INTO COASTWATCH

- *What can be done to prevent the future improper use of UAVs?*

It is assumed that this question relates to the potential use of UAVs by criminal elements, presumably to carry prohibited goods in a manner that might attempt to avoid detection.

First, it should be noted that the airframe and engine aspects of UAVs are mature technologies. There is an increasing number of companies offering a variety of UAVs and this is likely to result in lower acquisition prices for those wishing to purchase/upgrade such platforms.

Denial of access to UAVs could be attempted through legislative or other regulatory means targeting the manufacturers, distributors or operators. For example, manufacturers could be licensed and sales allowed only to approved purchasers. Such regulation would need to be done on an international basis and would be best done through existing regulatory authorities such as ICAO or CASA.

A number of options are available for UAV flight guidance including remote control, inertial navigation, GPS, and combinations of these. The least expensive and most obvious choice is the use of GPS for navigation, because this equipment is widely available and is inexpensive. The positional accuracy available for civil GPS use has recently been improved, from about 100m to 10m. UAVs can be programmed to fly to a final location via any number of waypoints. GPS signals cannot be jammed without affecting the growing number of legal civilian users. Jamming would also require knowledge of the location and time of any flight, in which case alternative actions may be more appropriate.

Low acoustic, visual, infrared and radar signatures of UAVs makes detection more difficult than for piloted aircraft. Detection by local area microwave radar systems will be possible, but at a reduced range. The effectiveness of wide area HF radar systems against such small targets will be heavily dependent upon the choice of operating parameters and the size, and hence radar signature, of the UAV.

- *The Qld Government submission (Sub 36, p. 2.) indicates the Qld Department of Primary Industries is establishing a system to monitor the location of fishing vessels in Qld waters*
 - *Would access to such a system assist Coastwatch operations?*
 - *How likely is it for Coastwatch to be given access to this information?*

Vessel Monitoring or Management Systems (VMS) are being introduced widely as a means of monitoring the activities of fishing fleets and the movement of vessels generally. Such systems provide the opportunity for administrative authorities to keep track of vessels for safety reasons, and to ensure compliance with licensing arrangements.

VMS can be set to active operation, sending out formatted messages at preset times, or on occurrence of certain events. VMS can also be accessed by the licensing authority to provide positional information as required by that authority. Data provided may be limited to that applying at the time of transmission, or may include data stored since the previous transmission. Communication may be by radio link or via satellite.

Coastwatch is actively seeking access to VMS data. It is expected that VMS information will give Coastwatch an enhanced capability to provide surveillance aircraft and response vessels with details of vessels reporting via VMS within Coastwatch areas of operation. Such data would reduce the need for aircraft to close on these vessels in order to achieve a positive identification, thus increasing the flight time available to deal with other unknown or unidentified targets.

As a corollary to this, activities of Coastwatch aircraft in areas frequented by VMS-equipped vessels would provide an opportunity to verify VMS data. Anecdotal evidence suggests that at least some operators of VMS equipped vessels may, from time to time, seek to mask their true position from the monitoring authorities.

Coastwatch has been engaged in negotiations for some time with the Australian Fisheries Management Authority (AFMA) seeking access to the VMS databases that capture information generated by the various State fishing authorities. To date, Coastwatch has been unable to successfully conclude these negotiations because of AFMA's concern over legal confidentiality issues and that providing the data will compromise its relationships with the fishing industry and the State fisheries authorities it regulates. However, AFMA has agreed to participate in meetings and discussions between Coastwatch and the various fishing industry parties in order to secure their support for Coastwatch to have access to VMS data.

- ***Have you evaluated the effectiveness of your methods of communication between Central Office and your regional offices?***
 - ***How secure are communication links between your offices and also with surveillance aircraft?***
 - ***Do you think the regional offices are sufficiently well equipped to carry out instructions from Central Office?***

Secure communications between Central Office and Coastwatch regional bases were significantly enhanced in early 2000 through the acquisition of new-generation 'Speakeasy' telephone/facsimile units for each base. This allows information classified up to 'SECRET' to be exchanged between Coastwatch Central Office and its regionally based operations staff. This equipment also enables the bases to have direct secure communications with Australian Defence Force units.

Long-range secure communications with Coastwatch aircraft are effected through the high frequency (HF) radio 'CYCOM' unit that provides an encrypted text messages capability. Short-range communications between ground stations, aircraft and sea-going vessels can also use the Customs ultra-high frequency (UHF) radio network. The inclusion of a Digital Voice Privacy (DVP) capability within this network provides secure voice communications. In the Torres Strait, a recent upgrade of the UHF network has been undertaken as part of the Government's National Illicit Drugs Strategy (NIDS). This project has resulted in the establishment of a network of transmitter and repeater stations at carefully selected sites that now provide comprehensive coverage of an area where communications have proven difficult in the past.

Equipping all Coastwatch aircraft to act as repeater stations has increased distances over which UHF broadcasts can be made via the Customs network. This enables ground-to-ground and ship-to-shore communications in situations where topography would otherwise interrupt the direct line-of-sight required for UHF communications. This capability has proven valuable in operations where secure communications were considered essential.

Additionally, recent communications upgrades on all Coastwatch aircraft have included the installation of satellite telephone equipment. While this facility is currently limited to voice-only communications, it is planned to expand it to include air-to-ground data transfers, including digital photography, radar pictures and, eventually, video. Initial trials have established the technical feasibility of this approach.

Coastwatch considers that its regional bases are well equipped to execute directions from Central Office. Each base is issued with an Operation Directive that sets out in detail their operational objectives, areas of operation and asset assignments. These Directives are subject to regular review and amendment to take account of changing client needs. Each base reports on a monthly basis on progress against the key objectives contained in their respective Directives.

Coastwatch is in the process of redeveloping its information technology (IT) platform to meet existing and emerging business needs. Implementation of the new Coastwatch Command Support System (CWCSS) will have impact throughout the full range of Coastwatch's business processes and will further enhance the strong communication links between its various operational centres. CWCSS will be designed to facilitate information flows internally and externally and will provide a real-time conduit for closer involvement of regional officers in planning and operations. Concomitantly, CWCSS will give Canberra senior staff better visibility of regional activities. Importantly, this enhanced situational awareness and improved ability to interact with Coastwatch offices will extend to its clients. A key design feature of CWCSS is improved electronic links, and hence information flows, with Coastwatch client agencies.

- *Defence in their submission suggested that “Another way to enhance operational effectiveness would be to establish commonality of communications and intelligence systems, such as linking military units, ACVs and charter aircraft by secure voice/data/imagery transfer.”*

- *How practical is this suggestion?*

The benefits flowing from adoption of particular communications equipment need to be balanced against the cost. Simply put, there are three possible options to establish commonality of communications and intelligence systems between Coastwatch, Australian Customs Vessels (ACVs), various ADF headquarters, and deployed ADF assets:

- a. Coastwatch and the ACVs adopt equipment compatible with military platforms.
- b. Defence adopts equipment compatible with that used by Customs and other civil law enforcement agencies.
- c. All agencies coordinate the future acquisition of compatible communications equipment.

Option (c) is the least costly and is therefore the option being pursued.

Secure text message communication (low-level security) is currently available between the ADF's Fremantle Class Patrol Boats, ACVs and Coastwatch aircraft using the commercial grade CYCOM system. This is a telling example of Option (c) in practical and effective use.

Voice communications (unsecured) between all platforms is already possible via a number of radio frequencies and via satellite phones. Additionally, the DVP system fitted to UHF radios provides secure voice communication between civil law enforcement agencies.

It is acknowledged that Coastwatch needs to maintain the ability to exchange information, intelligence and other data with all relevant agencies. The CWCSS project currently under way will address many of the issues relating to the flow of information internal and external to Coastwatch.

The Defence Mobile Communications Network, a Defence satellite based system currently under development will provide secure voice communications between all platforms fitted with the system. This option has been explored with Defence but the cost is currently considered excessive and the timeframe for commissioning the system is such that it does not meet Customs current requirements. The satellite communications equipment now fitted to Coastwatch aircraft will be compatible with DMCN when the system is fielded.

- *In your submission (enclosure 10, p. 2.) you commented that Coastwatch has “constant access to classified surveillance sources from Defence which are used in support of Southern Oceans monitoring.”*
 - *Does this information reveal a need for increased surveillance in that area?*

The question of whether there is a need for increased surveillance of Australian areas of interest in Southern Oceans is more one for AFMA and Environment Australia (EA) and its Australian Antarctic Division (AAD) to answer than Coastwatch.

However, it is reasonable for Coastwatch to acknowledge that effective surveillance of Australia’s Southern Ocean Exclusive Economic Zones is problematic. Distances from the Australian mainland, combined with extremes of weather, preclude the use of the land-based aerial surveillance assets currently available to Coastwatch. To date, the only aerial surveillance operation in the Heard Island and McDonald Island (HIMI) area has been achieved with the use of a RAAF C130 Hercules, specially modified to carry substantial supplementary fuel supplies. Even so, due to the distance to the HIMI area, the aircraft was only able to remain on task for a limited period of time during which it conducted visual surveillance.

In 1997-98, Coastwatch trialed the use of a commercial radar satellite (RADARSAT) service to gather information about possible foreign fishing vessel incursions into the HIMI area. At best, the results of this trial can be described as inconclusive. While the RADARSAT did register a number of returns during the passes conducted over the HIMI area, these were only given a low probability of being vessels. Confidence levels were not sufficient to task a response to the area. Additionally, this very expensive commercial satellite data is inferior to the high-quality imagery routinely provided by Defence.

Coastwatch is aware that establishment of an airfield on the Antarctic mainland is currently under consideration. Should this option proceed, and given access to a suitable aircraft, the ability of the civil maritime surveillance program to meet client needs in the Antarctic and sub-Antarctic regions would be significantly enhanced. At this stage, those client requirements have not been fully articulated to Coastwatch.

- ***The Committee notes your response to the Audit Report Recommendation 3.***
 - ***Have there been instances where high priority strategic tasks from an agency have been dropped because other tactical tasks arose which were deemed to have a higher priority?***
 - ***If so, how often does this occur? Would you provide details?***

Coastwatch operates within a budget for flying hours that is generally fixed on an annual basis. For the financial year 2000-01 the available funds will translate to a total of around 19500 hours of fixed and rotary wing flying. This figure will rise or fall slightly depending on the mix of airframe hours that are actually flown in response to changing client requirements throughout the year.

The planning approach adopted by Coastwatch is to factor all available flying hours into the 'Strategic', or planned flying program. Consequently, any 'Tactical', or target-specific flying that is undertaken is done so at the expense of the strategic program. In other words, Coastwatch does not retain any part of its budget as a reserve capacity to cater for tactical or surge activities. Where tactical operations preclude strategic tasks, Coastwatch endeavours to redress the deficiency created in the strategic program. This is achieved either by using the original asset on its return from the tactical operation, alternative Coastwatch assets, or through ad-hoc charter aircraft where appropriate. Coastwatch does not, at present, maintain a database that captures the number of strategic taskings foregone due to the requirement for tactical operations. Figures for 1998-99 show that the breakdown between strategic and tactical flying was of in the order of 80% and 20% respectively.

It should be noted that aircraft undertaking tactical operations are also briefed to watch for targets of interest to other Coastwatch clients, as is the case during normal strategic operations. This approach has meant that, for operations specifically tasked to search for possible Suspect Illegal Entry Vessels (SIEVs) off the northwest of Australia, Coastwatch is also able to provide information on fishing vessel activities in the area. To the extent that the SIEV flying has been more intense than normal operations in the area AFMA, for example, has therefore benefited from the tactical operations, rather than being disadvantaged by them.

- *How long did it take to get the first Bay Class vessel from contract stage to commissioning for Customs use?*
 - *Should the bay class vessels come under direct Coastwatch control or should they remain with customs?*

The time period between the contract execution date on 8 May 1998 and Customs acceptance of Hull 131, Australian Customs Vessel (ACV) ROEBUCK BAY, on 29 March 1999 was eleven months.

Key milestones throughout the ACV Bay Class Project were:

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| • Project Commencement | June/July 1997 |
| • RFP Released | September 1997 |
| • RFP Closed | November 1997 |
| • BAFO Closed | February 1998 |
| • Tender Evaluation | Feb - Apr 1998 |
| • Executive Decision to Proceed | April 1998 |
| • Contract Negotiations | Apr - May 1998 |
| • Contract Execution | 8 May 1998 |
| • Commence Detailed Design | May 1998 |
| • Commence Construction Hull 131 | July 1998 |
| • Launch Hull 131 [prototype] | January 1999 |
| • Contract Sea Trials | February 1999 |
| • Contractual Acceptance Hull 131 | 17 February 1999 [NB: 1 day late] |
| • Actual Acceptance Hull 131 | 29 March 1999 |
| • Naming Ceremony | 30 March 1999 |

All other ACVs were contractually accepted at six monthly intervals from Hull 131:

- Hulls 132 & 133, August 1999
- Hulls 134 & 135, February 2000
- Hulls 136, 137 & 138, August 2000

The total project timeframe was just over 3 years.

With regard to the organisational placement of ACVs within Customs it should be noted that the vessels and their crews are primarily a response and interdiction resource, having a strong law enforcement role. As such, they are managed by the Customs National Marine Unit (NMU) and, on behalf of Customs and other Federal and State agencies, maintain a strategic presence along Australia's coastline while frequently undertaking tactical responses to suspected or actual illegal incursions.

The ANAO Performance Audit of Coastwatch 1999-2000 noted that “ ... Coastwatch will need to develop appropriate arrangements with ACS Border to access the marine vessels of the ACS Border NMU ... ”.

Such arrangements are now in place and are well exemplified by the agreed procedures for command and control of responses operations in relation to suspect illegal entry vessel (SIEV) sightings. These arrangements and those supporting ACVs during both tactical and strategic operations follow the Customs operational command structure and provide effective support to a diverse range of clients.

The Customs marine fleet provides a quality surface surveillance, response and interdiction capability. This resource is particularly attuned to law enforcement activity with the crews and the direct management/command structure consisting of experienced operational managers familiar with the enforcement environment.

NMU strategic planning is linked directly to other assets available to Coastwatch through the Coastwatch strategic planning process and tactical operations are linked through the shared operational command structure. Through these arrangements, Coastwatch is able to access fully operational marine assets, skilled in Customs core business enforcement activities and supported by an effective command structure. This structure, which has the NMU separate from, but closely aligned to Coastwatch, has now successfully operated for some 15 months. This period has been one of very effective cooperation between the two areas.

Because the NMU provides fully operational vessels, Coastwatch has no need to raise, train, and sustain marine assets. Coastwatch is able to concentrate upon its core business of coordinating civil maritime surveillance and response operations. The suitability of the current structure is evidenced by the results being produced.

- ***How did you decide how to equip the new Torres Strait helicopter?***
 - ***Did you consult with Defence and/or your client agencies?***
 - ***Has the provision of night vision goggles ever been contemplated for the helicopters? If so, what was the reason for the outcome of the consideration?***

The primary objective of the acquisition of the new Bell 412EP helicopter was to overcome the shortfall in night capability stemming from the limited night and all-weather capability of the existing single-engine Bell 206 aircraft. Decisions on how the new helicopter should be equipped were based on Coastwatch's clear understanding of the response needs of clients in the Torres Strait. There were no specific discussions with Defence or clients about the proposed acquisition. However, with the exception of AFMA and AQIS, all interested agencies were represented at meetings of the Prime Minister's Task Force on Coastal Surveillance and were apprised of the proposed acquisition through the Task Force process.

The client need that was not being adequately catered for by Coastwatch in the Torres Strait was the ability to positively identify and respond to targets of interest at night and in bad weather. To overcome these limitations, the new helicopter is equipped with state-of-the-art Forward Looking Infrared (FLIR) and High Definition Television (HDTV) equipment similar to that installed in the Dash 8 fixed-wing aircraft. The Bell 412 is large enough to transport response teams to likely areas of operation.

To enhance the aircraft's suitability for night surveillance operations, the rear cabin of the Bell 412EP is optimised for the use of night vision equipment. However, night vision goggles (NVG) are not available for use by pilots as an aid to night flying operations. This was a considered decision, based on advice from CASA and Defence, which took full account of issues related to training and aircrew proficiency which had surfaced during the Inquiry into the Blackhawk crash in June 1996.

- ***On page 69 of the Audit Report No. 38, it indicates that the Bell 412EP is winch and rappel equipped.***
 - ***How suitable is this equipment for Coastwatch operations?***
 - ***Have they ever been used/tested?***
 - ***If the equipment is to be used, what are the associated costs involved (eg. crew training)?***

The winch and rappelling equipment incorporated on the Bell 412EP is, from a Coastwatch perspective, ancillary to surveillance operations. The decision to agree to the inclusion of this equipment was taken from the broader perspective of the potential (whole-of-Government) role that the new platform might be able to perform in the Torres Strait. The decision to include the winch has already been justified by a number of rescues where victims have been winched to safety. To date, no operations requiring use of the rappelling equipment have been undertaken.

As the winching and rappelling equipment is not considered essential to Coastwatch surveillance operations, all aircrew-training costs associated with this equipment have been borne by the contractor. By absorbing these costs, the contractor is placed in a position to accept search and rescue tasks from AusSAR where this equipment is needed.

- *Would you discuss the advantages/disadvantages of central planning for Coastwatch operations*

- *Does your operational planning take place centrally?*

Coastwatch planning takes place at several distinct levels. First, the 'Strategic' flying program, or Coastwatch Monthly Surveillance Program (CMSP), is prepared centrally by the Coastwatch Planning and Liaison sub-section in Canberra. This program sets out the aggregated tasking requirements of all clients and provides the basis for all regional operations. The civil contractors also plan their maintenance schedules and training activities on the CMSP.

The second level of planning takes place in the regional bases where Coastwatch operational staffs translate the CMSP into weekly flying programs and briefs for individual flights. Senior operations staff in Canberra monitor the planning activities of the bases to ensure there is proper deconfliction between aircraft being briefed from different bases, and to identify any anomalies that might arise with regional flight plans.

Coastwatch operates on a 'Command-by-Veto' basis, incorporating the concept of centralised strategic planning and decentralised execution. Coastwatch considers that this model provides a good balance between central control of overall operations and regional influence on the actual flying program based on their intimate knowledge of local client needs and environmental/geographical factors (such as tides and seasonal influences).

The final level of Coastwatch planning is that associated with tactical operations. For the most part, operations staff in the National Surveillance Centre in Canberra undertake this planning. Depending on the nature of the tactical operation, Coastwatch may deploy an Air Group Commander (AGC) to the client(s)' operational command team. The AGC's role is to provide guidance and advice on how best Coastwatch assets might support the operation and to act as the liaison point between the operational command and Coastwatch.

It is important to note that Coastwatch does not transfer operational command of any of its assets. Direction of all air activity remains with Coastwatch operations staff at all times.

- ***What procedures do you have to ensure that Coastwatch flight planners are suitably qualified to Australian aviation standards?***
 - ***Have any Coastwatch flight planners failed to meet required standards?***
 - ***In such instances, if they occur, what is the procedure?***

The specific applicability of “... Australian aviation standards ...” as they might relate to the skills and competencies inherent in the planning activities conducted by Coastwatch is unclear. In one sense, Coastwatch itself constitutes the civil surveillance industry in Australia, acknowledging that there is some symmetry between activities undertaken by AusSAR search planners and Coastwatch operations planners. The techniques, procedures and training methodologies used by Coastwatch have been heavily influenced by the approaches adopted by the Maritime Surveillance component of the RAAF. Most of the training material currently in use by Coastwatch was developed by former RAAF aircrew/trainers.

On appointment to Coastwatch all planning staff are provided with training relevant to the range of skills needed to perform their jobs. The aforementioned division of responsibilities between Central Office and regional bases ensures that a continuous quality check is made of planning work done by all experienced and inexperienced planners. With regard to managing those who might fail to meet the required standards, the ACS has a comprehensive Performance Assessment & Feedback program in place for assessing staff performance, developing staff, recognising/rewarding high achievers, and to manage under-performance.

- *The submission from Pacific Corporation Aviation Services (Submission No 35) proposes a paramilitary response force using amphibious Seawolf aircraft.*
 - *Would you discuss whether such a system is appropriate for Australian conditions?*
 - *Which agency should be responsible for such a force if it was introduced?*

Coastwatch has previously been offered the services of an amphibious aircraft as a response platform but has not utilised this particular option. Coastwatch remains sceptical about the suitability of aircraft, other than helicopters, for use as law enforcement response platforms in a maritime environment. Admittedly, the approach may have some value when dealing with totally compliant targets. However, as evidence already presented to the Committee reflects, even the capability of RAN patrol boats can be tested by vessels (eg Indonesian fishing vessels) that choose not to comply with orders to heave to for boarding. It is considered that the use of aircraft such as the 'Seawolf' may be potentially hazardous to the personnel on board as the risk of damage, either deliberate or inadvertent, could easily render the aircraft unserviceable and unable to recover to base. The implied suggestion that embarked (paramilitary) personnel could use force of arms to achieve their law enforcement objectives also needs to be examined against the experience of patrol boat operations.

Beyond holding the view that Coastwatch would have a coordinating role to play in the deployment of any such proposed force in a civil surveillance and response role, no opinion can be offered as to where in government such an entity should ideally be placed.