

Coastwatch's use of resources

Introduction

- 5.1 Coastwatch uses Defence assets and intelligence, Customs marine vessels, intelligence provided by its clients, and privately contracted aircraft to service its client agencies. Two major private sector contractors, Surveillance Australia and Reef Helicopters, deliver the majority of Coastwatch fixed wing and rotary wing flying services respectively. In addition, the RAAF allocates to Coastwatch P3-C Orion aircraft 250 flying hours each year.
- 5.2 In addition to marine and aerial resources, the Committee examined Coastwatch's management of human resources. The Committee also discussed with Coastwatch, Defence, and industry the potential for new technology resources to enhance Coastwatch operations.
- 5.3 During the inquiry the Committee inspected a variety of Coastwatch facilities in Canberra and in the regional offices in northern Australia. The inspections included Coastwatch's National Surveillance Centre in Canberra on two occasions during 2000. In September 2000, the Committee conducted an inspection tour of Darwin, Broome and Thursday Island and were briefed by regional officer managers and inspected several marine and aerial resources that are used by Coastwatch.

National Surveillance Centre

- 5.4 Coastwatch Central Office is located within the Customs building in Canberra. Key organisational elements of Central Office include the National Surveillance Centre, the Standards Group, the Future Concepts Group and the Contracts and Administrative Group.¹
- 5.5 The National Surveillance Centre was an initiative resulting from the PMTF and became operational on 26 January 2000.² It was established in order to enhance electronic communication links and to receive and assess information gathered from agencies. Recommendation 9 from the PMTF stated:
- That a National Surveillance Centre be established within Coastwatch in Canberra with enhanced electronic communications links, including with state agencies, and an internal capacity to analyse information received from agencies to better manage the national effort.³
- 5.6 The National Surveillance Centre is a classified area which provides a 24 hour centralised communications and co-ordination point for all Coastwatch operations. It consists of the following groups:
- Operations Group—provides 24 hour/7 day oversight for all Coastwatch operational activity;
 - Analysis Unit—provides a 24 hour intelligence facility in support of the operational function; and
 - Planning Group—develops and monitors the national surveillance plans.⁴
- 5.7 The National Surveillance Centre is supported by a suite of electronic systems supplied from a range of Government agencies, including Defence. Intelligence analysts provide a capability to analyse and disseminate information received. These analysts use the electronic systems to assist client agencies with risk assessments and support Coastwatch activities by providing intelligence which allows for the more effective deployment of resources.⁵

1 Customs, *Submission No. 25*, Volume 1, pp. S201–2.

2 Customs, *Submission No. 25*, Volume 1, p. S207.

3 Department of Prime Minister and Cabinet, *Report of the Prime Minister's Coastal Surveillance Task Force*, p. 5.

4 Customs, *Submission No. 25*, Volume 1, p. S201.

5 Customs, *Submission No. 25*, Volume 1, p. S207.

Fremantle Class Patrol Boats

- 5.8 There are 15 Fremantle Class Patrol Boats (Fremantles) which are assigned to Coastwatch operations for 1 800 sea days per annum. Rear Admiral Shalders informed the Committee this represents 'eighty per cent of their available seagoing effort.'⁶
- 5.9 The Fremantles are the main marine response and patrolling platform for Coastwatch operations. As the Audit Office highlighted, this is not based on cost efficiency, but 'on the historical allocation by Government, since the average steaming day operating total cost of [a Fremantle] is \$61 738.'⁷
- 5.10 The patrol boats are able to undertake surveillance duties and can be called upon in tactical operations to chase, board, and escort illegal vessels to port. A crew of up to 23, permits several steaming parties to be deployed on apprehended vessels, and the 40mm fitted gun provides enforcement capability.
- 5.11 Despite the high operating costs for the Fremantles, Defence told the Committee that the marine surveillance and response platforms were very valuable for training junior naval officers during peacetime. During a public hearing Commodore Moffitt emphasised this point:
- It allows us to gain experience at an early stage in an officer's career in an important area of operations around Australia. So, in that context, the activities that the patrol boats are involved with Coastwatch do contribute significantly to the health of the Navy overall.⁸
- 5.12 Commodore Moffitt discussed with the Committee the issue of life extension for the Fremantles. He told the Committee that 'the first of the Fremantles entered service in 1980 with a design life of 15 years. They have a four-year life extension, but even that makes the oldest vessels more than 20 years old now.'⁹
- 5.13 Defence conducted an inquiry into the life extension for the Fremantles and initially approved to extend their service life until 2008. However, a further review advised that life extension until 2008 was not a cost-effective option. It therefore recommended that Defence acquire a commercially built commercial standard of construction vessel to replace the Fremantles.¹⁰

6 Customs, *Transcript, 30 January 2001*, p. 273.

7 Auditor-General, *Audit Report No. 38, 1999–2000*, p. 76.

8 Defence, *Transcript, 18 August 2000*, p. 46.

9 Defence, *Transcript, 18 August 2000*, p. 46.

10 Defence, *Transcript, 18 August 2000*, p. 46.

- 5.14 The Defence White Paper announced that all Fremantles will be replaced by a new class of patrol boat and are expected to enter service from 2004-2005.¹¹ Commodore Moffitt informed the Committee that the replacement Fremantle Class Patrol Boats would not be totality military specification vessels.¹² During the final public hearing he stated:
- They will be built to civilian classification society construction rules because there is no justification in terms of either the military role more specifically or the civil role that they will be employed in for mil spec, which incurs substantially increased cost.¹³
- 5.15 Commodore Moffitt told the Committee that specifications for the new vessels might be of the order of 55 metres of vessel with a beam of something in the order of 8 to 10 metres.¹⁴ It was also mentioned that there might be some minor variation from the Fremantle class crewing arrangements with the new vessels, although these specifications were yet to be established. However, Commodore Moffitt did recognise that 'you cannot reduce the crew of the Fremantles terribly much and continue to do the job that we ask them to do.'¹⁵
- 5.16 Coastwatch informed the Committee that Defence has already asked Coastwatch for some input into what requirements and capabilities are needed for coastal surveillance operations. Rear Admiral Shalders told the Committee that 'Defence has asked for our input in terms of what we need and we have been engaged in a dialogue with Defence for some five years now on this particular project.'¹⁶
- 5.17 The most important requirement that Rear Admiral Shalders put forward in terms of Coastwatch requirements was 'that we would like to see 1 800 sea days providing at least the same level of capability that is currently represented by the Fremantle class.'¹⁷
- 5.18 The Committee was interested to find out whether any Coastwatch clients had been consulted about the Fremantle replacement project. Rear Admiral Shalders commented that Coastwatch clients had indicated that the published specifications for the Fremantles satisfied their needs.¹⁸

11 Defence, *Defence 2000, Our Future Defence Force*, p. 91.

12 Defence, *Transcript, 30 January 2001*, p. 277.

13 Defence, *Transcript, 30 January 2001*, p. 278.

14 Defence, *Transcript, 30 January 2001*, p. 277.

15 Defence, *Transcript, 30 January 2001*, p. 278.

16 Defence, *Transcript, 18 August 2000*, p. 22.

17 Customs, *Transcript, 18 August 2000*, p. 22.

18 Customs, *Transcript, 18 August 2000*, p. 22.

- 5.19 AFMA informed the Committee that they had been consulted by the RAN and the procurement group. During a public hearing Mr Geoffrey Rohan, General Manager, Operations, AFMA stated:

We are quite happy with the consultations that have taken place in relation to the Fremantle replacements because they have taken on board the sorts of capabilities that we require to conduct patrols and apprehensions and have been responsive to those.¹⁹

The Committee's comment

- 5.20 The Committee agrees with Coastwatch that the minimum number of allocated days for Fremantles to assist in Coastwatch operations should remain at 1 800 sea days. The Committee makes further comments regarding the adequacy of Coastwatch's marine response capability when it discusses the challenges for Coastwatch in Chapter 6.

Bay Class Vessels

- 5.21 In addition to the RAN Fremantles, Coastwatch also has access to eight recently commissioned Bay Class vessels (BCVs) which are under the control of Customs. Rear Admiral Shalders told the Committee that the full fleet 'would generate about 1 200 sea days each year.'²⁰
- 5.22 Coastwatch discussed with the Committee the extent of time BCVs would be allocated to Coastwatch operations. Rear Admiral Shalders told the Committee 'it is expected that the BCVs would spend about 70 per cent of their time on civil marine surveillance and response roles although this figure was only an estimate since the last of the Bay Class had only just been commissioned.'²¹
- 5.23 Mr Woodward reiterated this point when he said:

There could be periods where they are almost working entirely associated with Coastwatch activities, but there are some other activities they undertake where there is not a close linkage with Coastwatch.²²

19 AFMA, *Transcript, 8 September 2000*, p. 88.

20 Customs, *Transcript, 18 August 2000*, p. 16.

21 Customs, *Transcript, 30 January 2001*, p. 273.

22 Customs, *Transcript, 18 August 2000*, p. 16.

- 5.24 An example for the BCVs being used for activities other than Coastwatch operations was during the Sydney Olympic Games 2000, when several of the vessels were stationed in Sydney Harbour.
- 5.25 Mr Woodward emphasised that the Bay Class Vessels have two roles—'one is detection and one is operational, but there is a very close linkage including communication linkage between the two.'²³
- 5.26 The BCVs have a crew of eight to nine Customs officers. As noted in the audit report, 'this number of crew may inhibit the ability to place boarding parties on a number of vessels and then escort these vessels back to an Australian port.'²⁴
- 5.27 During its inspection tour of Northern Australia, in Darwin last year, the Committee inspected the Arnhem Bay BCV and raised the issue of limited crew size with the Commanding Office, Mr Scott Pisel. It was agreed that Customs officers on board a BCV were stretched in the event of two officers forming a steaming party for an apprehended vessel. However, Mr Pisel pointed out that the BCVs were not fitted out to accommodate any more than 9 officers.

The Committee's comment

- 5.28 The Committee understands that the limited crew numbers on board BCVs during an apprehension operation increases the pressure on Coastwatch to position a Fremantle close by to provide assistance, if needed. This issue highlights the risk management challenge for Coastwatch when coordinating limited resources for surveillance and response operations.

Fixed wing aircraft

- 5.29 Surveillance Australia provides Coastwatch with approximately 20 000 hours of visual and electronic aerial surveillance using the following aircraft:
- 5 Bombardier de Havilland Dash 8 Series 200, fitted with digital radar and opto-electronics;
 - 3 Reims F 406, fitted with digital radar and opto-electronics and night vision equipment;

²³ Customs, *Transcript, 18 August 2000*, p. 15.

²⁴ Auditor-General, *Audit Report No. 38, 1999–2000*, p. 75.

- 6 Pilatus Britten-Norman islander; and
 - 1 Aero Commander AC500 Shrike.²⁵
- 5.30 The Dash 8 aircraft is fitted with Forward Looking Infra-red (FLIR), High Definition Television (HDTV) and radar equipment which provides Coastwatch operations with effective electronic surveillance. The Committee participated in a Dash 8 routine strategic surveillance flight between Darwin and Broome as well as a tactical response flight between Broome and Darwin.
- 5.31 The Committee noted during the Coastwatch strategic surveillance patrol that although the surveillance radar system and the FLIR were not completely integrated, the FLIR could be manually cued onto the radar targets. This task was carried out effectively by a Coastwatch radar and FLIR officer.

Rotary wing aircraft

- 5.32 Reef Helicopters is the private contractor responsible for the delivery of the following rotary wing aircraft in the Torres Strait region:
- 1 Bell Long Ranger; and
 - 1 Bell 412 EP, (funds allocated to DIMA for this helicopter will be transferred to Customs under a purchaser/provider model).²⁶
- 5.33 The role of the Coastwatch helicopter is significantly different to that of the fixed wing air assets. The Bell Long Ranger helicopter, given the topography of the area, is principally used to pick up and deliver equipment and personnel. It provides Coastwatch with approximately 1 000 contracted hours per year. The Bell Long Ranger has visual surveillance capabilities only.
- 5.34 The twin engine Bell 412EP helicopter was introduced into operation in January 2000 as a result of the PMTF. The primary objective for acquiring this aircraft was to overcome the shortfall in night capability stemming from the limited night and all weather capability of the existing single-engine Bell Long Ranger aircraft.²⁷ It is contracted out to Coastwatch operations for 500 hours per year. The Bell 412 EP is equipped with surveillance capabilities including FLIR, HDTV and night vision

²⁵ Customs, *Submission No. 25*, Volume 1, p. S199. As a result of the PMTF the Government allocated two additional Dash 8 aircraft to DIMA for coastal surveillance purposes.

²⁶ Customs, *Submission No. 25*, Volume 1, p. S199.

²⁷ Customs, *Submission No. 41*, Volume 3, p. S577.

passenger equipment. In addition it has winch and rappel equipment for search and rescue purposes.²⁸

- 5.35 The ANAO was concerned with the lack of controls relating to the tasking of the helicopter and made a recommendation that Coastwatch review current controls with the aim of improving overall effectiveness. At the time of the audit report, Customs agreed with the recommendation and stated that a helicopter policy document was in the final stages of negotiation with all affected client agencies.²⁹
- 5.36 By March 2001, the Committee was pleased to note that Coastwatch had finalised its Helicopter Tasking Guidelines and Helicopter policy. The Helicopter policy outlines a list of appropriate helicopter taskings, clients and priority taskings.
- 5.37 In its submission Reef Helicopters commented that:
- ... there was a significant degree of urgency resulting from political pressure in the lead up to the helicopter larger surveillance contract [that] commenced 1st January 2000. They also noted that 'partly as a result of the urgency, some aircraft specifications, especially as they relate to equipment choice, interface, and ergonomic design, have proved less than perfect.'³⁰
- 5.38 The equipment suite of the helicopter was discussed with Reef Helicopters at the public hearing. Mr Earley advised the Committee that there had been technical problems with interfacing various pieces of equipment, however, since June 'everything has been working fine.'³¹ Mr Bizjak, Senior Observer, Reef Helicopters added that 'the FLIR system and the radar have been operable since day one'.³²
- 5.39 The Committee raised with the witnesses from Reef Helicopters criticism it had received regarding the usefulness of the FLIR for surveillance. Mr Bizjak responded that he believed the FLIR was not developed as a primary sensor, but nevertheless it was a very good sensor and did have a limited surveillance capability. As an example of its sensor capability he commented that the FLIR could detect a lit cigarette from 'probably 20 miles'. When questioned whether a surveillance radar should be fitted he drew attention to the weight implications:

28 Auditor-General, *Audit Report No. 38, 1999-2000*, p. 69.

29 Auditor-General, *Audit Report No. 38, 1999-2000*, p. 71.

30 Reef Helicopters, *Submission No. 27, Volume 2*, p. S268.

31 Reef Helicopters, *Transcript, 24 October 2000*, pp. 231-2.

32 Reef Helicopters, *Transcript, 24 October 2000*, p. 232.

At the moment, with four crew and a belly full of fuel one additional person will degrade the distance we can travel. Having a radar fitted would severely hamper the aircraft's distance.³³

- 5.40 The Committee also received criticisms regarding the appropriateness of the winch and rappelling equipment. Customs responded that the equipment incorporated on the Bell 412EP was, from a Coastwatch perspective, ancillary to surveillance operations. However, the decision to include it was made as a whole of Government initiative. This decision had been justified by a number of rescues where victims have been winched to safety.³⁴
- 5.41 The Committee pursued this issue and was informed by Coastwatch that although there were no specific discussions held with Defence or Coastwatch clients about the proposed acquisition, most client agencies (AFMA and AQIS excluded) were apprised of the proposed acquisition through the Prime Minister's Task Force process.³⁵

The Committee's comment

- 5.42 The Committee understands that there were time constraints for the delivery of the Bell 412EP arising from the PMTF. However, in general the Committee encourages Coastwatch to adhere to best practise and consult with all relevant client agencies regarding specifications for new equipment and resources.
- 5.43 Regarding the equipment suite for the Bell 412, the Committee agrees that the size of the helicopter and the need for longer range operations would probably prevent installation of both a surveillance radar and a FLIR system. Because the FLIR enables the identification of targets the inclusion of this type of equipment would be central to operations. The fact that the FLIR is able, through the ingenuity of its operators, to be used as a surveillance device justifies its inclusion on the helicopter.
- 5.44 The Committee understands that under Coastwatch operations other surveillance aircraft such as the Dash 8 would provide primary sensor information to be used to direct the helicopter which would act as a response vehicle.

33 Reef Helicopters, *Transcript, 24 October 2000*, p. 237.

34 Customs, *Submission No. 41*, Volume 3, p. S578.

35 Customs, *Submission No. 41*, Volume 3, p. S577.

Effectiveness of resources

- 5.45 AQIS utilises Coastwatch assets for ongoing and specific quarantine surveillance. Taskings involve the use of air surface assets primarily across northern Australia.³⁶ In the Torres Strait access to the Bell Long Ranger helicopter enables AQIS officers to visit the many islands 'across the 39 000 square kilometres of the Torres Strait for pest and disease monitoring purposes.'³⁷
- 5.46 In its submission AQIS stated that the 'additional twin engine helicopter has improved flexibility during peak demand periods (eg wet season with increased fruit fly monitoring and response activity).'³⁸
- 5.47 The Committee further questioned witnesses from AQIS whether the increase in Coastwatch resources arising from the PMTF review had benefited AQIS. Mr John Cahill, National Manager, Border Management Program, responded that additional resources to Coastwatch have meant that AQIS was able to 'maintain the hours that we need to access those resources, and the pressure from the competition, if you like, to utilise those assets has decreased because of the greater level of resources that have become available.'³⁹
- 5.48 The DIMA submission echoed this point in the following statement:
- ... the allocation of additional resources by the Prime Minister's Task Force on Coastal Surveillance ... has reduced pressure on available resources for surveillance required by clients in the traditional threat areas in the north and north west of Australia.⁴⁰
- 5.49 In terms of marine assets, AQIS noted in its submission that occasionally Coastwatch assets have not been operating to their full capacity. For example, during the public hearing Ms Helen Gannon, Manager, Seaports program stated:
- There have been occasions where the mechanics of the boats or assets have not been available or have not been fully functioning. We often use a smaller tender off the back of the vessel to get into ports along the coast. On occasion those tenders have not been functioning, which means that the expectations of the exercise

36 AQIS, *Submission No. 30*, Volume 2, p. S295.

37 AQIS, *Submission No. 30*, Volume 2, p. S295.

38 AQIS, *Submission No. 30*, Volume 2, p. S295.

39 AQIS, *Transcript, 18 August 2000*, p. 70.

40 DIMA, *Submission No. 24*, Volume 1, p. 184.

from our point of view are not always able to be fulfilled because of the use of the asset that we have.⁴¹

- 5.50 During the public hearing the AFP informed the Committee that they were holding discussions with Customs concerning the possibility of installing compatible communications equipment in Coastwatch aircraft.⁴² Mr Andrew Hughes, Acting General Manager National Operations, stated that 'if we had direct communications, with an aircraft then we are better placed to position our resources in a timely fashion.'⁴³
- 5.51 Although the high frequency radio sets are compatible with those on Coastwatch aircraft they are not secure. The AFP commented that 'we obviously want to have a degree of security on the communications' and are progressing discussions with Coastwatch on this matter.⁴⁴
- 5.52 In a supplementary submission Coastwatch informed the Committee that 'secure communications between Central Office and regional bases were significantly enhanced in early 2000.' 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.⁴⁵

The Committee's comment

- 5.53 The Committee notes that the AFP is progressing discussions with Coastwatch on the subject of secure communications for strategic surveillance and tactical taskings. The Committee encourages Coastwatch to continue to enhance its secure communication systems for the benefit of all agencies.

Post Flight Reports

- 5.54 The outcome of each surveillance flight is recorded by the aircrew in a Post Flight Report. That report is forwarded to the NSC in Canberra where the information is automatically entered into the Coastwatch database.⁴⁶ Rear Admiral Shalders outlined the general practice for post flight reporting:

41 AQIS, *Transcript, 18 August 2000*, p. 68.

42 AFP, *Transcript, 18 August 2000*, p. 75.

43 AFP, *Transcript, 18 August 2000*, p. 75.

44 AFP, *Transcript, 18 August 2000*, pp. 75–6.

45 Customs, *Submission No. 41*, Volume 3, p. S570.

46 Customs, *Submission No. 25*, Volume 1, p. S204.

The aim is that the PFR (post flight report) should be sent within one hour of the aircraft landing. The NSC then sends a copy of the report to relevant client agencies and Coastwatch regional offices.

- 5.55 A few client agencies commented on some improvements that could be made to post flight reporting. During a public hearing, AMSA commented that they were aware that there had been some delays in receiving post flight reports. Mr Clive Davidson, Chief Executive, AMSA, told the Committee 'it is in our interest, if we are to take action for pollution incidents, to have them in as timely a fashion as possible so that we can do the forensic work in order to secure a successful prosecution.'⁴⁷
- 5.56 Dr Kay, Assistant Secretary, Marine Conservation Branch, Environment Australia (EA), commented that they did not think accumulating half a metre's depth of faxed post-flight reports within a five month period was an efficient way to do business.⁴⁸ EA made the following suggestion:
- The development of a Coastwatch database for recording this material and which can be used to summarise and process this data is highly desirable.⁴⁹
- 5.57 Rear Admiral Shalders acknowledged that information was difficult to extract from post-flight reports. He explained that Coastwatch is working on a system that aims to provide service to clients through a much quicker, smarter automated system when the Coastwatch Command Support System is delivered in 2001.⁵⁰

The Committee's comment

- 5.58 It is the Committee's view that post flight reporting is crucial in the successful delivery of Coastwatch services to its clients. The Committee encourages Coastwatch to expedite the delivery of the Command Support System and the development of customised reports to its clients.

Armament

- 5.59 The issue of armament for Coastwatch resources and personnel has been rigorously debated over the last few years. During the PMTF it was decided that the newly commissioned BCV would carry small arms and the crew would have access to them when it was needed.

47 AMSA, *Transcript, 8 September 2000*, p. 105.

48 EA, *Transcript, 30 January 2001*, p. 284.

49 EA, *Submission No. 11*, Volume 1, p. S68.

50 Customs, *Transcript, 30 January 2001*, p. 284.

- 5.60 Mr Woodward, CEO Customs, admitted that he was initially very reluctant to arm the Customs officers. However, he told the Committee that:
- ... there were increasing pressures, particularly through our fisheries responsibilities. Some of those who are involved in fisheries excursions are fairly aggressive and there were some agencies that simply refused to accompany unarmed Customs officers.⁵¹
- 5.61 Customs engaged a former South Australian Police Commissioner to undertake a study in relation to both protection and offence. Following this report, which Customs accepted, the decision was made to provide small arms to the Bay Class Vessels and make these weapons available to the crews if needed.
- 5.62 The Committee discusses whether Customs vessels should have fixed armaments in Chapter 6 when the issue of illegal fishing is discussed.
- 5.63 Defence has indicated that the replacement Fremantles will have both military and civilian specifications. The Committee questioned whether any of the military specifications might detract from the new patrol boat's Coastwatch function. Commodore Moffitt responded that he did not believe it would and added that the 'armament fundamentally goes to the vessel's military role, not its support to Coastwatch type role.'⁵²

User pays

- 5.64 A system of 'user pays' would entail money being allocated to Coastwatch clients who would then be charged for Coastwatch's services. The Committee noted that the Hudson Report in 1988 considered the issues of user pays and cost attribution in depth. Hudson did not support the user pays system and drew the following conclusions:
- [The] notional allocation of the cost of the service to one user or among the total group of users may seriously distort decision making; and
 - [The] notional attribution of costs of production of a public good or service does not generate effective cost consciousness or help curtail expenditure.⁵³

51 Customs, *Transcript*, 18 August 2000, p. 16.

52 Defence, *Transcript*, 30 January 2001, p. 278.

53 Customs, *Submission No. 25*, Volume 1, p. S227.

- 5.65 As a result of the findings in the Hudson Report, the Government decided that Coastwatch would be budget funded for all services provided to its key client agencies. It was agreed that this method of funding was more cost effective than individual agencies receiving funding for their own surveillance and response operations.
- 5.66 The Audit Office noted, however, there have been significant changes regarding the provision of services in the APS since 1988, particularly those based on purchaser/provider arrangements between public sector agencies. The ANAO considered that there was merit in Customs trialing a model involving the funding being allocated to the relevant clients (the purchasing agencies) with Customs supplying the services (as the provider) on a user-pays basis.⁵⁴
- 5.67 Customs cautioned the ANAO on this aspect and advised that 'an attributed funding approach is likely to prove administratively unwieldy and may reduce operational responsiveness and flexibility to constantly changing threat parameters.'⁵⁵ Customs also considered that the short comings of a user pays approach to funding the civil surveillance program identified by Hudson remain.⁵⁶
- 5.68 During a public hearing Mr Ian McPhee, Deputy Auditor-General, advised the Committee of the limitations with user charging where there was only one provider, basically, which was dependent on the money coming to it from users. Mr McPhee stated:
- ... we are basically suggesting that Coastwatch understand better its costs and where they fall. There is a risk that if you put the money out and agencies have different priorities, it could be the case that Coastwatch is short in terms of its fundamental core responsibility.⁵⁷
- 5.69 He concluded 'there are some real issues and tensions with user charging in this sort of environment,' and he suspected 'that was why it was not pursued when it was considered back in the late eighties.'⁵⁸

The Committee's comment

- 5.70 The Committee believes that one aim of user pays would be for it to act as a check on costs of services provided by Coastwatch. The current arrangement where Coastwatch is only able to respond to the tasks

54 Auditor-General, *Audit Report No. 38, 1999-2000*, pp. 52-3.

55 Auditor-General, *Audit Report No. 38, 1999-2000*, p. 53.

56 Customs, *Submission No. 25*, Volume 1, p. S227.

57 ANAO, *Transcript, 18 August 2000*, p. 10.

58 ANAO, *Transcript, 18 August 2000*, p. 10.

requested by its clients seems to be working satisfactorily and provides some limitations to Coastwatch costs.

Cost attribution

- 5.71 Following a recommendation from the PMTF, DIMA was allocated additional resources principally for detecting vessels of concern to immigration. This included two Dash 8 aircraft and an additional helicopter. Ms Philippa Godwin, Border Control and Compliance, DIMA, informed the Committee that the intention of the additional resources was 'to try to avoid any undetected arrivals in either of those areas (east or west coast), which we have identified as the areas of threat.'⁵⁹
- 5.72 In its submission, DIMA stated that 'a framework for monitoring provision of the service and managing the transfer of funds has been incorporated into the Service Level Agreement between DIMA and Coastwatch.'⁶⁰ Although DIMA has been nominated to trial cost attribution procedures for the additional Dash 8s and helicopter in the Torres Strait, DIMA expected that these flights would still be multi-tasked.⁶¹
- 5.73 The Auditor-General stated that 'Coastwatch could consider trialing a system to allocate costs against client taskings undertaken.'⁶² The Committee heard further evidence in support of cost attribution from the University of Wollongong. Mr Bateman, Associate Professor, commented that the contributions from the separate agencies should be properly costed.⁶³
- 5.74 Mr Woodward was hesitant about the usefulness of implementing a cost attribution process. During a public hearing he commented that 'We will do it but I am not sure just how useful it [cost attribution] will actually be.'⁶⁴ Rear Admiral Shalders advised the Committee at the August public hearing that Coastwatch had only looked at cost attribution very tentatively at this stage. He also made the following comment:

59 DIMA, *Transcript, 18 August 2000*, p. 59.

60 DIMA, *Submission No. 24, Volume 1*, p. S184.

61 DIMA, *Submission No. 24, Volume 1*, p. S186.

62 Auditor-General, *Audit Report No. 38, 1999–2000*, p. 51.

63 Associate Professor Walter Bateman, *Transcript, 8 September 2000*, p. 130.

64 Customs, *Transcript, 18 August 2000*, p. 29.

We certainly now need to look at some way of at least being able to report, at the end of a period, the breakdown of our flying activities between clients.⁶⁵

The Committee's comment

- 5.75 The Committee considers there is merit in cost attribution because it would improve accountability and transparency for the funds appropriated to Customs for Coastwatch. It would also provide Coastwatch clients with a fuller understanding of the costs involved in achieving their outcomes.
- 5.76 The Committee will follow with interest the progression of the financial arrangements Coastwatch has with DIMA in relation to the new aircraft being acquired following the PMTF.

Human Resources

- 5.77 Coastwatch is an operational division of Customs employing 60 staff.⁶⁶ Although Coastwatch does not have direct managerial control of many of those responsible for providing services to Coastwatch clients, it is responsible for managing its national and regional staff.⁶⁷

Competency of Coastwatch Staff

- 5.78 Coastwatch staff in regional offices are managed using a matrix system through Customs regional offices. Under the Customs system staff in regional offices are administered nationally or regionally, depending upon their classification and the type of duties they perform.⁶⁸ In general, Customs officers are rotated into regional positions for three years depending on the location. Customs officers on assignment to Thursday Island are assigned for two years with the option of extension for another year.
- 5.79 The Committee received evidence from a retired Customs Officer, Mr Lofty Mason, who commented on the lack of professionalism within Coastwatch personnel in regional offices. In his submission, Mr Mason argued that Coastwatch aircraft were crewed by professional aviators, who were trained and capable aircrew. On the other hand, Customs

65 Customs, *Transcript*, 18 August 2000, p. 28.

66 Customs, *Submission No. 25*, Volume 1, p. S201.

67 Auditor-General, *Audit Report No. 38, 1999-2000*, p. 82.

68 Auditor-General, *Audit Report No. 38, 1999-2000*, p. 82.

Officers (on rotation into Coastwatch positions) who control the programming and allocation of Coastwatch resources initially 'have no idea of aircraft operations, which leads to major errors in programming.'⁶⁹

5.80 During a public hearing, Mr Mason commented:

If you look at the people that are being posted in and out of Coastwatch, they are only in the position for about three years, quite often, and this leads to a lack of professionalism overall in the group.⁷⁰

5.81 Surveillance Australia also commented on the Customs rotational policy for Coastwatch operations in its submission:

Customs officer training is of limited relevance to the operational control of the aviation assets employed by Coastwatch. Hence these officers have been provided with a short internal course on aircraft resource management...in comparison to Operations Controllers in similar roles such as the AusSAR coordinators or the RAAF P3 operations officers the training provided is insufficient.⁷¹

5.82 Surveillance Australia was concerned that the recent substantial increase in and sophistication of the Coastwatch aviation assets combined with the recent addition of military intelligence data into the Coastwatch operational planning process had gone beyond the level of training that the Coastwatch operation controllers were receiving.⁷²

5.83 On the other hand, Defence emphasised during a public hearing that relevant training, rather than an aviation background was important for Customs officers assigned to Coastwatch operations. Group Captain Roberts stated that 'What we are really looking at here is putting appropriately trained people in Customs, rather than just saying we need aviators in there.'⁷³

5.84 Coastwatch is responsible for a range of training activities, including the Basic Visual Surveillance Training Course through to electronic Mission Coordinator training. Coastwatch informed the Committee that 'many of the training courses have recently been rewritten to meet competency based training standards and to supplement the existing training manuals which were not as comprehensive as was needed.'⁷⁴

69 Mr Lofty Mason, *Submission No. 31*, Volume 2, p. S302.

70 Mr Lofty Mason, *Transcript, 18 August 2000*, p. 33.

71 Surveillance Australia, *Submission No. 22*, Volume 1, pp. S160-1.

72 Surveillance Australia, *Submission No. 22*, Volume 1, p. S161.

73 Defence, *Transcript, 18 August 2000*, p. 48.

74 Customs, *Submission No. 60*, Volume 4, p. S707.

- 5.85 During its inspection tour of northern Australia, the Committee tested the level of competence of the Coastwatch officers it met in various regional offices. The Committee is satisfied with the level of qualifications and competence of Coastwatch personnel.

Competency Assessment Training Officers

- 5.86 Coastwatch does not have direct managerial control of staff of other organisations involved with Coastwatch operations. Aircrews are the responsibility of either the civilian contractors or the RAAF, while the RAN manages the Fremantle crews. In addition, Customs Border Management directly manages the crews of the Bay Class Vessels.
- 5.87 To monitor the performance of its civilian contracted surveillance aircrew, Coastwatch employs Competency Assessment Training Officers (CATOs). Crew compliance is monitored by in flight assessment. Examinations are set by the CATOs who debrief the crew, inform the contractors of scores achieved and provide feedback on flights assessed to help the contractors manage their human resources effectively.⁷⁵
- 5.88 Rear Admiral Shalders described the CATO function as:
- ... a routine activity. We have CATOs spread around the country, coordinated from Canberra, and their job is the quality control, training and monitoring of the contracted aircrew.⁷⁶
- 5.89 The Auditor-General reported that Coastwatch has a target of placing CATOs on 15 per cent of contractor flights to ensure that contract standards specifying levels of crew professionalism are met. Coastwatch received funding for four new CATO positions in order to cover performance monitoring requirements for the new aircraft operations arising out of the PMTF.⁷⁷
- 5.90 Coastwatch advised the Committee in a supplementary submission that 'The CATOs are now fully staffed to the necessary work value level which will allow for the full rate of 15% of flights to be achieved for the first time in three years.' The submission added that 'All new CATOs recruited have strong aviation backgrounds, either ex-military or civil aviation.'⁷⁸

75 Customs, *Submission No. 60*, Volume 4, p. S708.

76 Customs, *Transcript, 18 August 2000*, p. 14.

77 Auditor-General, *Audit Report No. 38, 1999-2000*, p. 83.

78 Customs, *Submission No. 60*, Volume 4, p. S707.

The Committee's comment

- 5.91 The Committee supports the notion of a rotational assignment policy provided the agency is able to demonstrate it is assigning capable officers into a position that enables officers to be trained suitably in a short space of time. Rotation enhances the general skill level within the organisation and promotes flexibility. It also serves to maintain enthusiasm because newly rotated staff are able to bring fresh eyes to problems and a fresh approach.
- 5.92 The Committee also recognises that the rotational policy is particularly useful for recruiting Coastwatch officers in regional areas. It also serves the two way benefit of skill and experience sharing between National and regional offices. The Committee encourages the concept of 'job shadowing' as part of training for regional manager positions.
- 5.93 The Committee is pleased to note that Coastwatch is now fully staffed to allow for the full 15per cent rate of CATO monitoring for all contracted Coastwatch flights. However, the Committee is concerned that monitoring levels drop when the CATO's training commitments increase. Therefore, Coastwatch should ensure that the PMTF funding for four new CATO officers be used in a manner ensuring that shortfalls in monitoring do not occur in future.

New technologies

- 5.94 During the inquiry the Committee discussed new and potential surveillance technologies with Coastwatch, several client agencies and numerous private companies. Coastwatch informed the Committee of the evolving relationship between Coastwatch and Defence. Coastwatch commented that their enhanced relationship is expected to bring major benefits to Coastwatch in terms of technological advances. Major Defence projects that are expected to have considerable impact on wide area surveillance include the Jindalee Operational Radar Network (JORN), Airborne Early Warning and Control (AEW&C) aircraft and the Global Hawk UAV.
- 5.95 While the Chairman emphasised that it was not the purpose of the inquiry to recommend use of a particular surveillance technology, the Committee received extensive briefings on the range and impact of new and potential technologies.
- 5.96 Coastwatch informed the Committee that within its National Surveillance Centre it had established a new Future Concepts section responsible for

evaluating emerging technology and maintaining firm links with the scientific and industry communities.⁷⁹ These new technologies can be divided into platforms for sensors, the sensors themselves, and integration systems:

- Platforms
 - ⇒ Unmanned Aerial Vehicles (UAVs);
 - ⇒ Satellites;
 - ⇒ Airships;
 - ⇒ Amphibious aircraft; and
 - ⇒ Tilt rotor aircraft.
- Sensors
 - ⇒ Sonabuoys;
 - ⇒ Synthetic Aperture Radar; and
 - ⇒ Surface Wave Radar.
- Integrated systems
 - ⇒ MOSAIC (Multi-Operational Surveillance and Interdiction Capability).

5.97 The Committee has received a substantial number of submissions and exhibits from technology providers and has received evidence from several providers at its public hearings. The sections that follow discuss some of the various possible new technologies for coastal surveillance.

Platforms

Unmanned Aerial Vehicles (UAVs)

- 5.98 Kingfisher Unmanned Aviation Systems told the Committee that they hope to introduce UAVs into Australia's commercial, civil and military airborne surveillance and remote sensing markets. In its submission Kingfisher stated that 'most UAVs are for military applications but are easily converted or adapted for civil and commercial applications by buying off the shelf components.'⁸⁰
- 5.99 During the public hearing Mr Peter Bale, Director Kingfisher Unmanned Aviation Systems, described how its UAV could enhance Coastwatch's surveillance operations:

⁷⁹ Customs, *Submission No. 25*, Volume 1, p. S201.

⁸⁰ Kingfisher Unmanned Aviation Systems, *Submission No. 7*, Volume 1, p. S37.

It has 20-plus hours endurance. It is capable of cruising at around 20 000 feet. Its avionics payload can be configured up to a 150-kilograms payload. It has a loiter speed of 55 knots. The following sensor packages are on offer: stabilised, gimballed, colour day/night electro optical system, forward-looking infra-red, synthetic aperture radar (observing in excess of 7 000 feet), and the system configuration comprises a two-person flight operation.⁸¹

- 5.100 Sonacom Pty Ltd in technical conjunction with Sydney University is developing two relatively small, unmanned, vertical take-off-and-landing fixed wing aircraft, which they have called the Mirli. The Mirli is designed to take-off and land vertically and therefore it will have the capacity to operate from either a land base or from the landing deck of a ship.
- 5.101 The Mirli-A version is a small aircraft designed for short range, local surveillance that can range up to 250 km from its departure location. The Mirli-B version is double the size of Mirli-A and has a range of up to 1 000 km from its departure location.⁸²
- 5.102 During mid 2001 Defence engaged with the United States on a project trialing the Global Hawk UAV to evaluate and further develop Global Hawk as an airborne surveillance system. Coastwatch also participated in these trials.
- 5.103 The Global Hawk is a high altitude surveillance platform which represents the current upper limit in wide area coverage capability.⁸³ It is jet-powered and equivalent in wing size to a Boeing 737 commercial airliner. It has a range of 14,000 nautical miles and can fly at altitudes of up to 65,000 feet (19,812 metres) for more than 30 hours.⁸⁴
- 5.104 The Committee notes that the Global Hawk has successfully completed its Australian trial during which it flew over eastern, northern and north western Australia, flying a total of 154 000 kilometres in over 250 hours of flight time.⁸⁵

81 Kingfisher Unmanned Aviation Systems, *Transcript, 24 October 2000*, p. 220.

82 Sonacom, *Submission No. 33*, Volume 2, p. 312.

83 Customs, *Submission No. 25*, Volume 1, p. 246.

84 <http://www.dsto.defence.gov.au/globalhawk/home.html>

85 Hon Dr Brendan Nelson MP, Parliamentary Secretary to the Minister for Defence, *Global Hawk set to break another record after a successful deployment*, Media Release, 7 June 2001.

Satellites

- 5.105 Coastwatch informed the Committee that wide area detection and identification was possible from satellites using a variety of sensors. However, satellite technology was a prohibitively expensive option.⁸⁶
- 5.106 In early 1988 Coastwatch had contracted a civilian radar satellite operator to undertake satellite surveillance of Australian Southern Ocean EEZ but unfortunately the trial was not successful.⁸⁷ The Committee notes that Coastwatch currently has access to classified Defence intelligence sources, including satellites.⁸⁸

Airships

- 5.107 Barry Douglas Australia Pty Ltd, an Australian representative of Advanced Technologies Group UK, are manufacturers of the 'SkyCat' range of hybrid aircraft. They advised the Committee in a submission that a 'small fleet of such platforms has the potential to provide a highly effective surveillance barrier around the entire Australian Coastline.'⁸⁹ The 'SkyCat' attributes were listed as the following:
- surveillance and interdictive capabilities;
 - long endurance;
 - low direct operating costs;
 - benign environment;
 - zero forward speed means no Doppler clutter;
 - non invasive, non threatening;
 - minimal GSE [Ground Support Equipment], easy to maintain; and
 - large payload volume, can carry large UHF radar.⁹⁰

Amphibious aircraft

- 5.108 Pacific Corporation Aviation Services (PCAS) is the Australian representative for the US based Lake Aircraft Company, which manufactures the 'Seawolf surveillance aircraft'. PCAS advised the Committee of the features of its proposal for a highly mobile amphibious aircraft force which they stated was capable of operating by day and night

86 Customs, *Submission No. 25*, Volume 1, p. S246.

87 Customs, *Submission No. 25*, Volume 1, p. S256.

88 Customs, *Submission No. 25*, Volume 1, p. S246.

89 Advanced Technologies Group, *Submission No. 53*, Volume 3, p. S647.

90 Advanced Technologies Group, *Submission No. 53*, Volume 3, pp. S646–51.

from remote dirt airfields, lakes and inland waterways, or from the open sea.

5.109 Capabilities of its aircraft include:

- wing pylon-mounted FLIR detector and video surveillance equipment;
- powerful search lights;
- 12 hours endurance at 140 knots;
- operating costs of less than \$140 per hour;
- ability to reconfigure the aircraft to surveillance or search and rescue mode within an hour;
- low maintenance and running costs;
- on-board surveillance radar; and
- secure communications and GPS navigation equipment.⁹¹

Tilt Rotor Aircraft

5.110 During a public hearing Reef Helicopters discussed the benefits of a tilt rotor technology which could possibly be available within the next 6-7 years. This technology could fill the surveillance role for the 90–400 mile (144–640 km) range. Mr David Earley, CEO, Reef Helicopters, described the tilt rotor as the following:

It is basically an aircraft that is capable of vertical take-off and landing with tilting large propellers that are allowed to slowly progress into forward flight and then enjoy the high-speed characteristics of a fixed-wing aircraft with reduced costs and range enhancement.⁹²

Sensors

Sonabuoys

5.111 Sonacom Pty Ltd has also designed 'Sonabuoys' which are surveillance devices, with floating components which support Radio Frequency (RF) antennas. Acoustic listening devices are suspended beneath the buoy. The buoys:

- are solar powered;

⁹¹ Pacific Corporation Aviation Services, *Submission No. 35*, Volume 2, pp. S509–10.

⁹² Reef Helicopters, *Transcript, 24 October 2000*, p. 237.

- incorporate a Global Positioning System;
 - can transmit data via RF link or satellite;
 - can be left at sea unattended for up to six months;
 - are designed to be deployed from aircraft or ships; and
 - can be self-anchoring in waters up to 300 metres deep.⁹³
- 5.112 Vice Admiral Chalmers also told the Committee that the buoys could detect, track and classify suspicious ships or aircraft through the noise they produce from their engines or the machinery they are operating. They could be used to detect and monitor unauthorised air movements and illegal fishing in remote areas such as the Southern Ocean.⁹⁴

Synthetic Aperture Radars

- 5.113 Coastwatch recognises that higher resolution Inverse Synthetic Aperture Radar (ISAR) capabilities may be useful in classifying small vessels from long ranges. They commented that ISAR will allow a reduction in the time spent deviating from the planned flight route to close in on the target for classification/identification purposes.
- 5.114 Elta Electronics Industries Ltd, a subsidiary of Israel Aircraft Industry Ltd, provided an exhibit to the Committee outlining information about its Synthetic Aperture Radars. The features of its systems include:
- optimal detection of small surface targets at medium and long ranges;
 - automatic detection and tracking without operator intervention;
 - high range resolution;
 - continuous operation under all weather conditions;
 - high reliability;
 - lightweight and low power consumption;
 - background digital map; and
 - interoperability with additional sensors.⁹⁵

Surface Wave Radar

- 5.115 Telstra Applied Technologies (TAT) has worked closely with Defence Science Technology Organisation, the cooperative research centre for

⁹³ Sonacom, *Submission No. 10*, Volume 1, p. S58.

⁹⁴ Sonacom, *Transcript, 8 September 2000*, pp. 140–1.

⁹⁵ Oceanic solutions, *Submission No. 14*, Volume 1, p. S85.

Sensor Signal and Information processing and Daronmont Technologies to create a Surface Wave Radar (SWR). TAT highlighted that SWR could provide continuous surveillance at a much lower cost than other sensors and could also be relocated as and when new high risk areas were identified. It could be deployed with real time radar track information fed directly to the National Surveillance Centre. TAT estimated that a single SWR could provide 24 hour air/sea surveillance over an area of 70 000 square km at a cost of \$3 000/day.⁹⁶

- 5.116 In the last half of 2000, Coastwatch participated in a trial conducted over Northern Australia for High Frequency Surface Wave Radars (HFSWR). In its submission, Coastwatch discussed the way HFSWR is a derivative of the Jindalee research now being actively marketed within the private sector. It commented that HFSWR has the potential to provide detection and tracking of larger surface vessels out to 300km and over an arc of 90 degrees. It can be made transportable and can be relocated to previously selected and prepared sites.⁹⁷

Integrated systems

MOSAIC

- 5.117 CEA Technologies, an Australian advanced technology company, discussed with the Committee its proposal called MOSAIC (Multi-Operational Surveillance and Interdiction Capability). CEA suggested MOSAIC would provide a national barrier to illegal intrusion into Australian interests.⁹⁸
- 5.118 The range of capability would include:
- radar (conventional and advanced active phased array);
 - sensor data fusion (coalescing detections from a wide range of active and passive sensors—radars, sonar, electro-optics, ESM, intelligence);
 - classification systems, techniques and algorithms to differentiate suspected targets from lawful traffic;
 - electronic support measures—long-range electronic detection;
 - communications systems—secure and non secure radio networks and electronic data links;
 - electronic System Research and Development; and

⁹⁶ Telstra Applied Technologies, *Submission No. 17*, Volume 1, pp. 101–6.

⁹⁷ Customs, *Submission No. 25, Volume 1*, p. S245.

⁹⁸ CEA Technologies, *Submission No. 37*, Volume 2, p. S519.

- provision of specialist consulting services.⁹⁹

The Committee's comment

- 5.119 The Committee was impressed with a number of potential and emerging surveillance technologies that were put before them. In seeking information about potential new technologies the Committee has had no intention of advocating particular technologies for adoption by Coastwatch. Rather, it believed it was necessary to develop an understanding of the new technologies in the market and the technologies which might become available in the near future.
- 5.120 However the Committee draws Coastwatch's attention to its report on government purchasing, Report 369, *Australian Government Procurement*, and the need to consider Australian suppliers when reviewing purchasing options.
- 5.121 The Committee recognises that the challenge for Coastwatch, Defence and the Government is to find the right balance between new technologies to assist with strategic surveillance and the purchasing and on-going costs of these technologies. The Committee supports the Future Concepts section within Coastwatch and encourages the already good working relationship Coastwatch has developed with Defence in terms of evaluating and trialing new technologies.
- 5.122 Further information about new technologies described above can be found in the submissions to the inquiry and the transcripts of the public hearings. These can be found at the Committee's website: <http://www.aph.gov.au/house/committee/jpaa/coastwatch/subs.htm>

⁹⁹ CEA Technologies, *Submission No. 37*, Volume 2, pp. S519-520.

