

COMMANDER'S PAPER

Cold fleet: The Southern Ocean, Antarctica and the ADF

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NOVEMBER 2016

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Abstract

This paper examines Australia's involvement and responsibilities in Antarctica and the Southern Ocean, in the context that both have increasingly become areas of interest to Australia as a result of a number of environmental and socio-political drivers, notably climate change, resource exploitation and growing tensions over sovereignty claims.

The paper addresses several approaches for dealing with these issues, particularly identifying areas where the ADF has the capability and potential assets to contribute significantly to Australia's national interests. It concludes that in the not-too-distant future, it may prudent for the ADF to head south, where its development of 'cold fleet' (and perhaps 'cold feet') capabilities could contribute significantly to Australia's longer-term security.

Cold fleet: The Southern Ocean, Antarctica and the ADF

Introduction

Antarctica and the Southern Ocean have increasingly become areas of interest to Australia as a result of a number of environmental and socio-political drivers, notably climate change, resource exploitation and growing tensions over sovereignty claims.¹

This article will examine Australian involvement and responsibilities within Antarctica and the Southern Ocean to determine effective approaches for dealing with these issues, particularly in a resource-constrained environment. It concludes by making a number of recommendations as to what the ADF could do to assist in addressing these issues.

Antarctica and the Southern Ocean

Australia has a longstanding involvement in Antarctica and the Southern Ocean. Over the years, numerous scientific expeditions have been launched from Australia, and Hobart is an internationally-recognised 'gateway' to the Antarctic region.² In addition to early British expeditions, notable Australian explorers have included Douglas Mawson, Edgeworth David and Griffith Taylor. These and other pioneers established a scientific tradition of exploration and scientific leadership, establishing Australia as a 'world leader in many areas of Antarctic sciences, contributing substantially to its influence in international discussion'.³

This tradition has solidified Australia's claim to 42 per cent of the Antarctic landmass, known as the Australian Antarctic Territory. It is the single largest claim on the continent, notable for having no contested territorial boundary overlaps (notwithstanding that the US and Russia refuse to recognise Australia's claim).⁴ The Antarctic Treaty System, the key legislative framework used since 1959 to regulate interactions between parties in Antarctica, remains the cornerstone for international involvement within Antarctica today.⁵

The Southern Ocean, which borders the Australian Antarctic Territory and several Australian-flagged islands, is a key commercial and strategic region for continued Australian economic success and security. Although the Southern Ocean contains the world's largest untapped commercial fishing stocks, its Southern Patagonian toothfish population was heavily over-fished in the early 1990s, generating considerable media reporting in Australia and calls for better protection of resources within the Australian exclusive economic zones (EEZ) surrounding Macquarie Island and Heard and McDonald Islands (see Figure 1 overleaf).⁶

Such overfishing contributed to the development of two key conservation agreements: the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), which governs living marine resources; and the Protocol on Environmental Protection to the Antarctic Treaty (1991), also known as the Madrid Protocol, which prohibits commercial mineral extraction in Antarctica.⁷ CCAMLR, with its Hobart-based secretariat, is cited as one of the most effective examples of maritime conservation, whereby 'harvesting is carried out in a sustainable manner ... tak[ing] account of the effects of fishing on other components of the ecosystem'.⁸

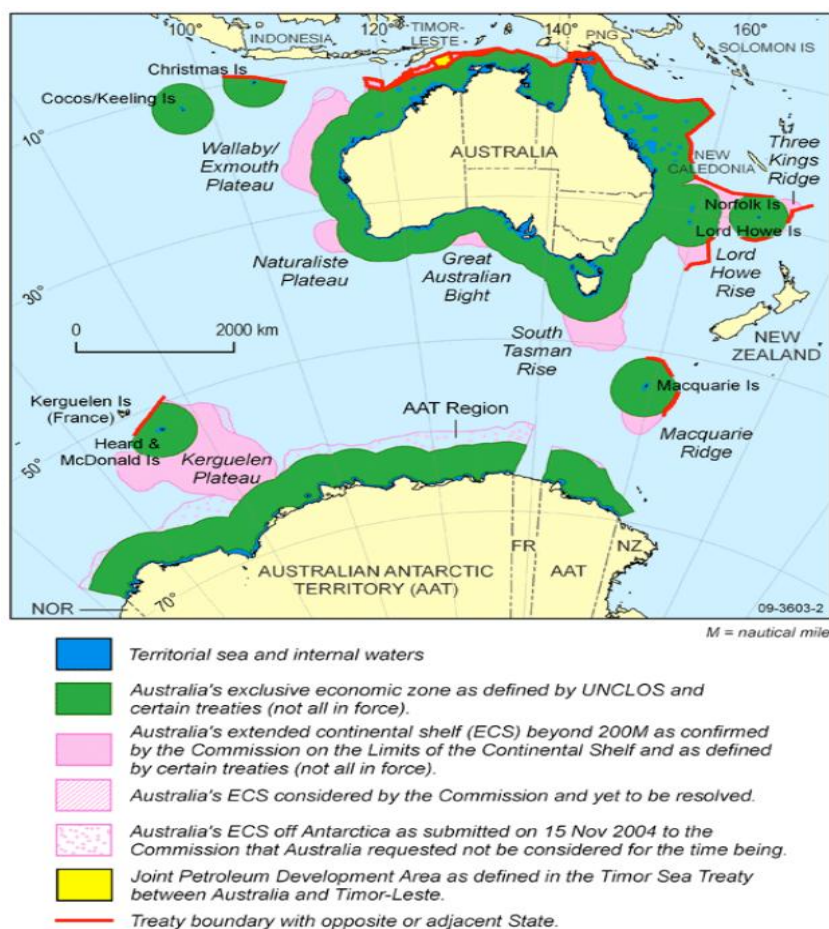


Figure 1: Australian territory and claims in Antarctica and the Southern Ocean⁹

Government agencies

Australia's principal authority on matters concerning Antarctica is the Australian Antarctic Division, within the Department of Environment. It is responsible for funding research and the logistics required to support operations. The Division's 2015-16 budget was \$118.4 million, substantially less than its 2014 budget of \$157 million.¹⁰ However, the Government announced in October 2015 that the existing research vessel *Aurora Australis* would be replaced at an estimated cost of \$500 million, to provide a substantially-enhanced capability in both logistic and scientific support.¹¹

The Department of Defence is primarily involved in Antarctica and the Southern Ocean through the assets contributed individually or as part of combined operations by each of the three Services in support of Australia's national activities. These include science, emergency response, enforcement, and logistics support. Within the Southern Ocean, the ADF is involved in surveillance of Heard and McDonald Islands, and fisheries enforcement in consultation with other government agencies.¹² The Australian Government also has search-and-rescue responsibilities within this region, and ADF assets have been called on in the past, notwithstanding that the ADF lacks dedicated vessels for operating in the region's conditions.

Within Antarctica, ADF involvement has been more limited because of the demilitarised nature of the Antarctic Treaty System and the privatisation of logistic support to the Australian Antarctic Division. In previous years, the RAN contributed hydrographic survey teams, and Army on occasions deployed geospatial teams in support of Australian Antarctic Division activities. In 2015, the RAAF deployed a C-17 heavy-lift aircraft to Wilkins aerodrome in Antarctica as part of

a proof-of-concept logistic support for Australian personnel. That commitment will continue in 2016, as Operation SOUTHERN DISCOVERY, involving up to six flights.¹³

Other than these examples, the ADF's presence in the Antarctic and Southern Ocean is generally minimal, beyond its hydrographic and search-and-rescue obligations.

The Antarctic Treaty System and challenges

The Antarctic Treaty System is the 'framework for the governance of the land and water south of 60 degrees south latitude'.¹⁴ Its 53 signatories comprise seven claimant states and 46 others (some of which either do not recognise the claims of others or have not stated their positions). However, all have agreed to suspend existing claims and any associated disputes, instead committing to use the continent for expressly scientific purposes.

Provision exists for the Treaty to be reviewed in 2048. In the meantime, decision making is restricted to the 'consultative parties' (totalling 29), being the original 12 signatories and 17 others directly engaged in scientific research (as opposed to the remaining 24 states, which are simply signatories). Importantly, scientific contributions in combination with an active presence generate political capital within the Antarctic Treaty System, with a lapse in either perceived as a loss of commitment, particularly to territorial claims.¹⁵

Both the US and Russia (as the former Soviet Union) were original signatories to the Treaty, although neither were claimant states as such. However, both maintain an unspecified 'basis of claim' to territory, effectively rejecting the claims of others, and both maintain several year-round stations in Antarctica.¹⁶ Several other states have been steadily increasing their presence in Antarctica, including China and India.¹⁷

The media has also reported several occurrences of 'flag waving' in recent years, including by the UK in naming a new portion of Antarctica after Queen Elizabeth II, and a sign outside a Chinese research station with the words 'Welcome to China' among the more benign.¹⁸ Collectively, such developments have led some to speculate that emerging parties may eclipse Australia's influence and reputation, and even—given recent cuts to the Australian Antarctic Division's budget—potentially force Australia to cede territory.¹⁹

Beyond these perceived assertions of authority, reported research by Russia and China (and others) into the feasibility of mining in Antarctica has also raised concerns.²⁰ There have also been reports of Antarctic research stations conducting scientific research into developments with dual-use military purposes, including in relation to offensive weapon systems. For example, the establishment of a Chinese research base (Kunlun Station) on Argus Dome, the highest icecap in the South Pole at over 4000 metres, is ideally situated for satellite communication, and could have a role in signals interception or the control or detection of ballistic missiles.²¹

While some of these reports are little more than speculation, the potential dual-use of infrastructure within Antarctica undoubtedly raises some concerns within Australian defence circles as to what has otherwise been regarded as a secure southern approach. Such concerns highlight the need for greater levels of transparency regarding the 'scientific research' being undertaken by consultative partners to the Antarctic Treaty System. Otherwise, there will be increased potential for misunderstanding and miscalculation, as is already a feature of other contested regions of the world.

Environmental change

In 2014, the Intergovernmental Panel on Climate Change reported that:

Warming of the climate system is unequivocal and, since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and the sea level has risen.²²

This trend, corroborated for the past 30-50 years across numerous stations in Antarctica, has exacerbated concerns over the future of the continent's terrestrial and aquatic wildlife.²³ The rising temperature extremes accompanying this change, resulting in seas reportedly warming by as much as 1-2 degrees Celsius over the past 100 years, have already been evidenced globally through increased ocean acidification (where the Southern Ocean is particularly vulnerable).²⁴ It is also expected that climate change impacts within Antarctica and the Southern Ocean, particularly in relation to melting ice, will be substantially greater in the future, with continuing adverse effects.

For example, recent studies have modelled altered fish migration patterns within the Southern Ocean under various climate change scenarios, which may result in certain populations 'becoming locally extinct, if they are unable to adapt to warmer ocean temperatures'.²⁵ Second-order impacts may also result in food web disruptions throughout the ecosystem, compounding the issue further.²⁶ Perhaps the most pertinent example relates to krill, which underpins a large proportion of food webs, where it has been noted that 'a large-scale and long-term projection for the Southern Ocean shows that, within a century, important krill recruitment habitats could be seriously affected'.²⁷

Any such single example is expected to be sufficient to cause significant damage to the environment; in concert, multiple impacts could be catastrophic. Such likely outcomes reaffirm the need for greater scientific inquiry in the region to better appreciate both the drivers and impacts of climate change. Given that scientific research provides both an essential contribution to knowledge and the accrual of political capital within the Antarctic Treaty System, it would seem a worthwhile investment to support the Australian Antarctic Division and Australia's scientific endeavours in Antarctica.

In addition, there is obvious benefit in protecting Australia's environmental and economic interests in the Southern Ocean, which already show indications of decreases in commercial fishing stocks. Moreover, it is widely acknowledged that Antarctica plays a dominant role in Australia's own climate, where Antarctic processes sustain the climates experienced in Australia. Indeed, some have argued that the dangers posed by climate change should be framed as a security issue for Australia, reinforcing the need for scientific research and timely actions to mitigate its implications.²⁸

Illegal fishing

Between 1995 and 2009, it is estimated that some 150 fishing vessels operated illegally in the Southern Ocean, contrary to the provisions of the UN Convention on the Law of the Sea, which prohibit the unauthorised exploitation of marine resources within a country's EEZ.²⁹ As noted in the 2014 *20 Year Australian Antarctic Strategic Plan*:

The lack of regular patrols in the region means that those fishers are able to continue to deplete fish stocks in the Convention Area of the Commission for the Conservation of Antarctic Marine Living Resources without sanction.³⁰

In a number of instances, the vessels were operating in Australia's conservation zones, yet Australia lacked the resources to respond (or at times did not know that the vessels were present or operating illegally), with Sam Bateman noting in February 2015 that:

We've had a number of incidents already this year where Australia actually couldn't do anything, despite the fact we had the primary obligation to respond.³¹

In January 2015, for example, three vessels were detected by Australian patrol aircraft illegally fishing within Australia's EEZ. However, because Australia lacked the ability to respond, it requested that New Zealand offshore patrol vessels, which were in the area, intercept the vessels under the provisions of CCAMLR, which authorises the boarding and inspection of suspect vessels by signatory members where the aggrieved party is unable to respond.

Such collaborative efforts, particularly between Australia, New Zealand, UK and France, are not uncommon in the Southern Ocean. For example, Australia signed an agreement with France in 2003 in which both nations agreed to provide security within the adjoining EEZs of Heard and McDonald Islands, and the Kerguelen Islands.³² Agreements for even closer cooperation between the two countries were reached in 2011 and 2015, with extended patrols being conducted by the Australian Border Force vessel *Ocean Shield* that year.³³ Similarly, in December 2015, the UK icebreaker HMS *Protector* deployed from Hobart to the Southern Ocean in support of the UK and its partners' territories.³⁴

There have also been broader examples of international cooperation to combat illegal fishing activities, most notably when the fishing vessel *Thunder*, illegally fishing for toothfish in the Southern Ocean, was pursued by the conservation group Sea Shepherd for 110 days, with *Thunder*—and its Chilean captain and largely Indonesian crew—being denied entry to a number of ports as the pursuit went from the Southern Ocean to the Indian Ocean and then the Atlantic.³⁵

The Government's response

In 2013, the Australian Government commissioned a report to examine Australian commitments in the Southern Ocean and Antarctica over the next 20 years. Its findings, released in 2014 as the *20 Year Australian Antarctic Strategic Plan*, recommended several areas of investment, including a strengthened whole-of-government approach, a replacement icebreaker and the development of inter-continental air transport.³⁶

Several recommendations gave scope for deeper involvement between government agencies, which potentially could include the ADF. As noted earlier, the ADF does not have dedicated assets capable of operating year-round in the Southern Ocean and Antarctic waters. Bateman, for example, has argued for the acquisition of offshore patrol vessels similar to those of New Zealand, which are capable of operating in the remote Southern Ocean.³⁷ Anthony Bergin has similarly questioned whether Australia's current patrol boat replacement program, which focuses on border protection within Australia's northern approaches, should be reviewed to include the requirement to operate in the Southern Ocean, given the increasing need to police the southern fisheries.³⁸

However, others have argued that the current reactive policy is appropriate for the Southern Ocean, based primarily on intelligence, surveillance and reconnaissance assets, rather than acquiring and deploying a pre-emptive surface patrol capability.³⁹ While that argument seems reasonable, it nevertheless would seem useful for the ADF to have the capability to react rapidly to illegal fishing incursions, as well as search-and-rescue commitments, rather than depending on the support of partners or by deploying RAN or Australian Border Force ships that are ill-suited to the conditions.

Moreover, while the Antarctic Treaty System expressly prohibits military activities within Antarctica, provision exists for the use of logistic units in support of scientific endeavour. Such arrangements are already in place with both New Zealand and the US, each with capabilities similar to Australia's. Unlike Antarctica, the Southern Ocean has no such military restrictions and there would seem to be significant scope for further ADF involvement, particularly given the increasing interest in the region and incidents such as the intercept of illegal fishing vessels in January 2015 and the MH370 recovery effort, which have illustrated the difficulties for Australian vessels operating in these waters.⁴⁰

It is also necessary to consider the increasing frequency of tourism operations in the Southern Ocean, with an estimated 40,000 tourists visiting Antarctica in 2015 alone. Given Australia's search-and-rescue mandate in a large proportion of the Southern Ocean and Antarctica, it may also be in the Government's interest to invest in a capability which can respond to these emergencies, considering recent examples where Australia was unable to do so and had to leverage international partners to meet its obligations.⁴¹

Recommendations and opportunities

Against this background, it would seem prudent to review the ADF's engagement in Antarctica, drawing particularly on the experience of the New Zealand Defence Force, which has supported New Zealand's Antarctic program for over 50 years, with Operation ANTARCTICA now the largest since the downscaling of Afghanistan operations in 2015. The New Zealand Defence Force experiences its highest levels of activity in the lead-up to the Antarctica summer season, with approximately six C-130 and four Boeing 757 flights per year being deployed to transport some 1200 tonnes of cargo and over 5000 personnel.⁴²

Personnel and cargo from both New Zealand and the US are also transported to and from, and within Antarctica as part of a cooperative agreement between both nations, which 'adds a great deal of value to the New Zealand Antarctic program and makes a significant contribution to our US partners'.⁴³ New Zealand's claimed territory in the Ross Dependency is supported by a New Zealand Defence Force contingent of up to 200 personnel in the summer, with smaller teams remaining to offer specialist support over the duration of winter. It therefore seems logical that the ADF should engage closely with the New Zealand Defence Force, given its extensive experience supporting Antarctic operations.

Opportunity 1: Develop a dedicated heavy-lift support capability to supplement Australia's existing logistic efforts

As mentioned earlier, Australia has been using C-17 heavy-lift support flights (as part of Operation SOUTHERN DISCOVERY) to supplement the Australian Antarctic Division's logistic capacity, currently provided by contracted Airbus 319s, particularly until the replacement of *Aurora Australis* in 2019. As a semi-permanent or even permanent contributor to Australian Antarctic Division operations, a dedicated heavy-lift support capability could be broadened beyond the contractual obligations of existing arrangements, enabling the RAAF to gain experience in an environment unlike any other Australian operation. Continued C-17 flights would also allow the *Aurora Australis*' replacement to conduct dedicated scientific research rather than focusing almost exclusively on supply runs.

The C-17's ability to fly to and from Antarctica without refuelling provides a flexibility unavailable to current Antarctic contractors (at least at short notice). That was demonstrated in March 2016 when RAN members were deployed at short notice via a C-17 to assist in the loading and extraction of helicopters from the Australian Antarctic Division's South Casey base.⁴⁴ The regularity of resupply flights means that missions could be planned well in advance, and deconflicted with other ADF operations. The New Zealand Defence Force also has experience with intra-Antarctic flights using C-130s, which could be a potential area of expansion for the RAAF.

The New Zealand Defence Force is planning to replace its airlift fleet in the period 2018-25, presenting an opportunity for the ADF to collaborate in developing a joint airlift capability.⁴⁵ Noting the rising risk of a serious incident involving tourists, in addition to those involved in scientific research—and the likelihood that the ADF would be tasked to respond—it would seem prudent for the ADF to gain experience operating in extreme cold weather when the situation is benign, rather than being required to respond to a crisis for which it had limited preparation.

Opportunity 2: Invest in a Southern Ocean-capable seagoing platform for enforcement and search-and-rescue responsibilities

The New Zealand Defence Force operates Protector-class offshore patrol vessels, which are ice-strengthened to operate in the Southern Ocean and Antarctica. These vessels have already been used to intercept illegal fishing vessels, and provide a capability Australia does not possess. As the ADF is currently investigating a replacement vessel for its patrol boats, mine hunters and survey vessels through procurement project SEA 1180, it would seem logical to consider future commitments to the Southern Ocean (and Antarctica) that may be required by one of these three vessel types (including, for example, existing hydrographic survey obligations).

Indeed, examples like those of January 2015 involving illegal fishing vessels illustrate that it would be appropriate to consider a vessel with similar capabilities to the New Zealand offshore patrol vessel to meet the requirements of search-and-rescue and Australia's commitment to CCAMLR. The show of sovereignty generated by such patrols is recognised globally, with a notable example being the UK's 2015 deployment of the armed icebreaker HMS *Protector* to police territory far beyond the scope of its normal areas of operations.

Given that both New Zealand and France have called for deeper commitment from Australia in support of the shared policing of EEZs and enforcing CCAMLR, it would seem useful for the ADF to deepen its engagement with the New Zealand Defence Force to assess this niche capability and be better informed on SEA 1180.⁴⁶

Opportunity 3: Deepen engagement with local partners and maintain existing ADF-supported operations in Antarctica

While both Australia and New Zealand are in competition as Antarctic gateways, the close association between the ADF and the New Zealand Defence Force nevertheless provides a number of collaborative opportunities. Indeed, given the New Zealand Defence Force's explicit aim of operating in conjunction with the ADF, as expressed in New Zealand's most recent Defence White Paper, it seems appropriate for the ADF to engage militarily with New Zealand in CCAMLR and search-and-rescue responsibilities. Closer support to scientific collaboration, as suggested in the *20 Year Australian Antarctic Strategic Plan*, could also be facilitated through shared logistics between the ADF and New Zealand Defence Force.

While no current precedent exists for cooperative Antarctic logistics between the two countries, defence cooperation in this space would offer benefits to both. In addition to the capabilities recommended at Opportunities 1 and 2, the longstanding association between New Zealand and Australia provides the basis for additional cross-training in niche skills, such as cooperative hydrographic engagement, where data could be used for scientific research in support of both nations. Defence capacity-building between Australia and New Zealand has long been recognised in both nations' doctrine, and the scope to do so in Antarctica for logistical and scientific gain offers a unique avenue for closer engagement.

These recommendations accord with the intent of the *20 Year Australian Antarctic Strategic Plan*. Such collaborative efforts, supporting international norms, would particularly benefit scientific endeavours that address fisheries monitoring and climate change issues, and would enhance Australia's position within the Antarctic Treaty System. They would also benefit the ADF's international reputation⁴⁷ and, strategically, assist in ensuring a de-militarised Antarctica and a secure southern approach to Australia.

Maintenance of the Antarctic Treaty System's status quo, and mitigating the threat posed by currently-prohibited activities, is clearly in Australia's interest. While any formal challenge to the Antarctic Treaty System cannot be instigated until 2048, recent rhetoric from others is likely to have heightened concerns within Australia as to the longer-term security of its southern approaches, with the attendant prospect of needing to divert resources from its northern approach.

More broadly, the increased use of ADF assets in support of the Australian Antarctic Division, as part of a coordinated whole-of-government effort, would signify to the international community that Australia takes very seriously its commitment to the Antarctic Treaty System and Australia's claims to Antarctic territory.

Conclusion

While any ADF contribution to Australian operations in Antarctica, in the spirit and words of the Antarctic Treaty System, can only directly relate to the logistic and constabulary roles outlined above, this article has argued that there would be considerable flow-on effects, including in terms of Australia's commitment to the Antarctica. Scientific endeavours in Antarctica are particularly dependent on the necessary funding to provide effective logistics, where recent experience—

notably the threatened closure of Australia's permanent base on Macquarie Island—has illustrated the impact of government-wide austerity measures on the Australian Antarctic Division's activities.⁴⁸

In the expected environment of ongoing financial constraints, continuing search-and-rescue and illegal fishing responsibilities, and international jostling and competition by states keen to exploit the perceived resources and strategic benefits of Antarctica, it has been argued that the ADF has the capability and the potential assets to contribute significantly to Australia's national interests in the Southern Ocean and Antarctica. In the not-too-distant future, it may prudent for the ADF to head south, where its development of 'cold fleet' (and perhaps 'cold feet') capabilities could contribute significantly to Australia's longer-term security.

Notes

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