

## CHAPTER 6

### MARINE PROTECTED AREAS IN THE SOUTHERN OCEAN

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#### INTRODUCTION

Antarctica and the Southern Ocean have been described as being among the last great wildernesses.<sup>1</sup> Overall, the region benefits from a relatively small human footprint<sup>2</sup> with the Ross Sea region considered the “least impacted of any open ocean, marine area on Earth.”<sup>3</sup> There are currently over 8,200 species listed on the Register of Antarctic Marine Species<sup>4</sup> but it is estimated that there could be as many as 17,000 species located in the Antarctic marine environment.<sup>5</sup> A large number of those species are endemic<sup>6</sup> and the Southern Ocean comprises dynamic habitats including ice, hydrothermal vents, seeps and mud volcanoes.<sup>7</sup> Whilst the Southern Ocean has been largely protected from human impact by its remote location and hostile weather and sea conditions, it is by no means pristine. Early human impacts in the Antarctic were all marine focused and populations of Antarctic fur seals, southern elephant seals, king penguins, marbled rockcod, mackerel ice-fish and the great whales were significantly depleted by overfishing during the nineteenth and twentieth centuries.<sup>8</sup> The Patagonian toothfish fishery began in the 1970s and stocks of toothfish have been declining since 2000;<sup>9</sup> under the current regulatory framework, toothfish biomass will decrease by fifty percent compared to pre-exploitation levels by 2031.<sup>10</sup> Concern has been expressed over the potential impact of a reduction in toothfish on top predators in the region, such as Weddell

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<sup>1</sup> A. Terauds “Conservation biogeography of the Antarctic” (2012) 18 *Diversity and Distributions* 726-742 at 726.

<sup>2</sup> Ibid.

<sup>3</sup> D.G. Ainley “A history of the exploitation of the Ross Sea, Antarctica” (2010) 46 *Polar Record* 233-243 at 233. See also B.S.S. Halpern et al. “A global map of human impact on marine ecosystems” (2008) 319 *Science* 948-951.

<sup>4</sup> H.J. Griffiths “Antarctic Marine Biodiversity - What do We Know About the Distribution of Life in the Southern Ocean?” (2010) 5(8) *PLoS One* e11683 at 5.

<sup>5</sup> Ibid., 6.

<sup>6</sup> Ibid., 5.

<sup>7</sup> Ibid., 7.

<sup>8</sup> T. Tin et al. “Impacts of local human activities on the Antarctic environment” (2009) 21 *Antarctic Science* 3-33 at 3 and 18-22. See also S. L. Chown et al. “Challenges to the Future Conservation of the Antarctic” (2012) 337 *Science* 158-159.

<sup>9</sup> D.G. Ainley and D.B. Siniff “The importance of Antarctic toothfish as prey of Weddell seals in the Ross Sea” (2009) 21 *Antarctic Science* 317-327 at 323.

<sup>10</sup> Ibid., 240. The current regulatory framework is provided by the CAMLR Convention (Convention on the Conservation of Antarctic Marine Living Resources of 20 May 1980 (1329 UNTS 47). See further Serdy, chapter 10, this volume.

seals,<sup>11</sup> particularly in light of recent research which suggests that over-exploitation of demersal fish in the 1970s and 1980s has had a significant long-term impact on the overall ecology of the Southern Ocean.<sup>12</sup> Other impacts on the Southern Ocean - actual and potential - include pollution,<sup>13</sup> tourism,<sup>14</sup> invasive species,<sup>15</sup> climate change and ocean acidification.<sup>16</sup> In contrast to the Arctic however, impacts associated with coastal development, extractive industries and commercial shipping are minimal or non-existent.

In order to restrict the (relatively) small human footprint in the Southern Ocean, states party to the Antarctic Treaty<sup>17</sup> and its associated instruments, including the Madrid Protocol<sup>18</sup> and the CAMLR Convention<sup>19</sup> have individually and collectively sought to develop a regime for the protection of the marine environment and the sustainable utilization and conservation of biodiversity. Over the last decade, states have increasingly recognised the importance of establishing marine protected areas (MPAs) as a means to better protect representative or fragile marine habitats. In the subantarctic, maritime zones under national jurisdiction currently benefit from more extensive area-based protection than maritime zones in any other region on Earth.<sup>20</sup> In the Antarctic, in areas beyond national jurisdiction, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) has begun the process of designating MPAs<sup>21</sup> and, in 2011, adopted a regulatory framework designed to facilitate the creation of a network of representative MPAs.<sup>22</sup> MPAs can also be designated under Annex V of the Madrid Protocol<sup>23</sup> by the Antarctic Treaty Consultative Meeting (ATCM) and provision is made for institutional cooperation between the Committee for Environmental Protection (CEP)<sup>24</sup> and CCAMLR with respect to the creation of MPAs.

This chapter will explore the approach taken by the ATCM and CCAMLR to the designation of MPAs within the Southern Ocean in light of both national and international

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<sup>11</sup> *Ibid.*, 325.

<sup>12</sup> D.G. Ainley and L.K. Blight “Ecological repercussions of historical fish extraction from the Southern Ocean” (2009) 10 *Fish and Fisheries* 13-38. The authors note that there are challenges in reaching definitive conclusions as to the impact of overfishing owing to a lack of ecosystem data from prior to the onset of commercial fishing.

<sup>13</sup> The oil spill from the *Bahia Paraiso* in 1989 off the coast of Western Antarctica covered an area of more than 3 km<sup>2</sup> and is the largest recorded spill to date. See Tin et al., note 8 at 5.

<sup>14</sup> The most serious incident to date is the sinking of the *MS Explorer* south of King George’s Island in November 2007. However, there have been a series of accidents involving tourist ships, fishing vessels and protest vessels in the Antarctic over the last five years. See further K.N. Scott “Safety of shipping in the Southern Ocean” (2010) 16 *Journal of International Maritime Law* 21-44 and Boone, chapter 9, this volume.

<sup>15</sup> See Y. Frenot et al. “Biological Invasions in the Antarctic: extent, impact and implications” (2005) 80 *Biological Reviews* 45-72.

<sup>16</sup> See P. Convey et al. “Antarctic Climate Change and the Environment” (2009) 21 *Antarctic Science* 541-563.

<sup>17</sup> Antarctic Treaty of 1 December 1959 (402 UNTS 71).

<sup>18</sup> Protocol on Environmental Protection to the Antarctic Treaty of 4 October 1991 (30 ILM 1455).

<sup>19</sup> Note 10.

<sup>20</sup> M.D. Spalding, L. Fish and L.J. Wood “Toward representative protection of the world’s coasts and oceans – progress, gaps and opportunities” (2008) 1 *Conservation Letters* 217-226 at 224. See further discussion in the section ‘Southern Ocean MPAs under National Jurisdiction’ below.

<sup>21</sup> CCAMLR Conservation Measure (CM) 91-03 (2009) ‘Protection of the South Orkney Islands southern shelf’.

<sup>22</sup> CCAMLR CM 91-04 (2011) ‘General Framework for the establishment of CCAMLR Marine Protected Areas’. See further subsection ‘MPAs and the CAMLR Convention’ below. All CCAMLR Conservation Measures (CMs), Resolutions (Res.) and documents are available at <www.ccamlr.org>.

<sup>23</sup> Annex V was adopted by means of ATCM Recommendation XVI-10 (Bonn, 17 October 1991).

<sup>24</sup> Established under art. 11 of the Madrid Protocol.

developments with respect to the creation of MPAs. It will begin with a necessarily brief introduction to the notion of the MPA as a conservation tool with a particular emphasis on the emerging global regime for the designation of high seas MPAs. The next section of this chapter will examine the creation of MPAs within waters under the jurisdiction of states, primarily within the subantarctic, whilst the subsequent section will analyse, in greater detail, the designation of MPAs beyond national jurisdiction. Developments at the regional level will provide the principal focus for this section although the creation of MPAs in the Southern Ocean under international instruments will also be noted. In the penultimate section of this chapter, the evolving relationship between CCAMLR and the CEP, and between the Antarctic Treaty System (ATS) and other international bodies (such as the International Maritime Organization (IMO)), will be reviewed. It will be argued that close cooperation and collaboration among relevant institutions is a fundamental prerequisite for the development of Southern Ocean MPAs that are genuinely multi-functional and able to regulate a range of co-located activities such as fishing, tourism and scientific research. This chapter will conclude with some observations and recommendations designed to strengthen the MPA as a conservation tool in the Southern Ocean.

#### THE MPA AS A TOOL OF CONSERVATION

The concept of the MPA is increasingly regarded as a primary tool of marine conservation at the national, regional and international level. There is no single definition of an MPA although broadly the concept refers to “any defined area within or adjacent to the marine environment, together with its overlaying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings.”<sup>25</sup> Similarly, an MPA has no single purpose and can be designated to protect vulnerable species, representative ecosystems, to manage co-located activities or to develop ecosystem resilience against threats such as over-fishing, shipping and climate change.<sup>26</sup> Rather than serving a single purpose, the modern MPA is more often than not used as a mechanism to implement integrated, ecosystem, spatial management as well as to support the sustainable use of the marine environment more generally.<sup>27</sup>

A large number of international instruments permit or require the designation of MPAs, including but not limited to: the CBD<sup>28</sup>; the World Heritage Convention<sup>29</sup>; the Ramsar

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<sup>25</sup> *Report of the Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas*, of 13 February 2003 (doc. UNEP/CBD/SBSTTA/8/INF/7), para. 30.

<sup>26</sup> See D. Al-Abdulrazzak and S.C. Trombulak “Classifying levels of protection in Marine Protected Areas” (2012) 36 *Marine Policy* 576-582. It should also be noted that MPAs may be designated for non-conservation purposes such as the management of navigation or the protection of national security.

<sup>27</sup> Spalding, Fish and Wood, note 20 at 217. See also Y. Tanaka *A Dual Approach to Ocean Governance. The Cases of Zonal and Integrated Management in International Law of the Sea* (Ashgate Publishing Ltd, Farnham: 2008) ch. 5.

<sup>28</sup> Convention on Biological Diversity of 22 May 1992 (1760 UNTS 143).

<sup>29</sup> Convention Concerning the Protection of World Cultural and Natural Heritage of 16 November 1972 (1037 UNTS 151).

Convention<sup>30</sup>; the CMS<sup>31</sup>; the LOS Convention<sup>32</sup>; and regional seas conventions.<sup>33</sup> Moreover, in 2002, a target was set at the World Summit on Sustainable Development (WSSD) to establish a network of representative MPAs by 2012.<sup>34</sup> This target was supplemented and endorsed by the CBD in 2004 whereby states party to the Convention agreed to protect ten percent of the world’s ecological regions by 2012.<sup>35</sup> Currently, just over two percent of the world’s oceans are protected,<sup>36</sup> and, acknowledging their likely failure to meet the 2012 goal, states at the tenth Conference of the Parties (COP) to the CBD in 2010, extended the deadline to 2020 as part of the Aichi Biodiversity Targets.<sup>37</sup>

One of the challenges associated with establishing a network of representative MPAs is their designation on the high seas or in areas beyond national jurisdiction. To date, only 47 MPAs have been designated covering approximately 0.17 percent of the high seas.<sup>38</sup> As a tool designed to support marine spatial or area-based management it is unsurprising that MPAs have traditionally been associated with notions of territorial control and state jurisdiction. Moreover, although there is no rule under treaty or custom prohibiting the creation of high seas MPAs, there is also no explicit multilateral basis on which they may be designated. Nevertheless, implicit support for high seas MPAs can be found in a number of provisions of the LOS Convention - notably articles 194(5), 123, 197 and 237 - and their designation has been endorsed in other instruments such as Agenda 21,<sup>39</sup> the CBD and many regional instruments of application to the marine environment.<sup>40</sup> Moreover, state practice also increasingly supports the designation of high seas MPAs. For example, special areas within which discharges from vessels are prohibited or subject to stringent regulation have been established in the Southern Ocean and the Mediterranean under the MARPOL.<sup>41</sup> Furthermore, over thirty percent of the

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<sup>30</sup> Convention on Wetlands of International Importance Especially as Waterfowl Habitat of 2 February 1971 (996 UNTS 245).

<sup>31</sup> Convention on the Conservation of Migratory Species of Wild Animals of 23 June 1979 (1651 UNTS 333).

<sup>32</sup> United Nations Convention on the Law of the Sea of 10 December 1982 (1833 UNTS 396).

<sup>33</sup> For a discussion of these instruments and their provisions relating to MPAs see Lalonde, chapter 5, this volume.

<sup>34</sup> WSSD, Johannesburg Plan of Implementation of 4 September 2002 (available at <www.unep.org>), at para. 31(c).

<sup>35</sup> See CBD COP 7 Dec. VII/28 ‘Protected Areas (Articles 8(a) to (e))’, para. 18; CBD COP 7 Dec. VII/5 ‘Marine and coastal biodiversity’, paras. 18-31; CBD COP 7 Dec. VII/30 ‘Strategic Plan: future evaluation of progress’, Annex II, Goal 1.1.

<sup>36</sup> The Nature Conservancy Policy Brief, October 2012, *Aichi Target 11 - Reshaping the global agenda for MPAs* (available at: <www.nature.org/newsfeatures/pressreleases/tnc-marine-policy-brief-2012.pdf>).

<sup>37</sup> CBD COP 10 Dec. X/2 ‘The strategic plan for biodiversity 2011- 2020 and the Aichi Biodiversity Targets’, Target 11. This target was subsequently endorsed in UNGA Res. 66/288, ‘The Future We Want’, of 11 September 2012, at para. 177.

<sup>38</sup> The Nature Conservancy Policy Brief, note 36.

<sup>39</sup> Of 14 June 1992 (available at <www.unep.org>).

<sup>40</sup> On the evolution of high seas MPAs see J. Ardron “Marine spatial planning on the high seas” (2008) 32 *Marine Policy* 832-839; P. Drankier “Marine Protected Areas in Areas beyond National Jurisdiction” (2012) 27 *International Journal of Marine and Coastal Law* 291-350; K.M. Gjerde “High Seas Marine Protected Areas” (2001) 16 *International Journal of Marine and Coastal Law* 515-528; K.N. Scott “Conservation on the High Seas: Developing the Concept of the High Seas Marine Protected Area” (2012) 27 *International Journal of Marine and Coastal Law* (forthcoming); T. Scovazzi “Marine Protected Areas on the High Seas: Some Legal and Policy Considerations” (2004) 19 *International Journal of Marine and Coastal Law* 1-17.

<sup>41</sup> International Convention for the Prevention of Pollution by Ships of 2 November 1973, as modified by the Protocol of 1 June 1978 and the Protocol of 26 September 1997; as regularly amended.

oceans are designated as a whale sanctuary under the auspices of the ICRW.<sup>42</sup> Similarly, a number of areas of the high seas are closed to fishing or particular types of fishing activities (such as bottom trawling) under the auspices of several regional fisheries management organisations (RFMOs).<sup>43</sup>

However, all of these high seas MPAs are designed to serve a single or narrow range of functions such as the prevention of over-fishing or vessel-source pollution and cannot be described as promoting or supporting an integrated ecosystem approach to oceans governance. The sole exception thus far to the narrowly focused high seas MPA is the network of seven high seas MPAs established between 2010 and 2012<sup>44</sup> in the North-East Atlantic by the OSPAR Commission.<sup>45</sup> The network covers over 386,200 km<sup>2</sup> of the North-East Atlantic<sup>46</sup> and the management plans associated with each MPA are deliberately designed to underpin and support ecosystem-based management.<sup>47</sup> Significantly, the OSPAR Commission has concluded Memoranda of Understanding with selected RFMOs<sup>48</sup> and other interested organisations<sup>49</sup> in order to address as wide a range of activities as possible taking place within and around the MPAs. Nevertheless, the OSPAR MPA network is currently not yet ecologically coherent<sup>50</sup> and, covering approximately 3.15 percent of the OSPAR maritime area,<sup>51</sup> falls far short of the WSSD and CBD targets.

The concept of the high seas MPA is presently under active consideration by the parties to the CBD<sup>52</sup> and by the United Nations General Assembly (UNGA) which, in 2004, established the UN Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biodiversity beyond areas of national

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<sup>42</sup> International Convention for the Regulation of Whaling of 2 December 1946 (161 UNTS 72).

<sup>43</sup> Illustrative examples of RFMOs adopting such measures include the: North-East Atlantic Fisheries Commission (NEAFC); the Northwest Atlantic Fisheries Organization; the South East Atlantic Fisheries Organization; the General Fisheries Commission for the Mediterranean; and CCAMLR. Further information can be found at <[www.fao.org/fishery/topic/16204/en](http://www.fao.org/fishery/topic/16204/en)>.

<sup>44</sup> See Decs. 2010/1 to 2010/6 and Recs. 2010/12 to 2010/17 adopted by the OSPAR Commission at its 2010 meeting. The initial network of six MPAs was increased to seven in 2012 with the designation Charlie-Gibbs North High Seas MPA in 2012 (see OSPAR Dec. 2012/1). All OSPAR documents and acts are available at <[www.ospar.org](http://www.ospar.org)>.

<sup>45</sup> The OSPAR Commission operates under the authority of the OSPAR Convention (Convention for the Protection of the Marine Environment of the North-East Atlantic of 22 September 1992 (amended and updated text available at <[www.ospar.org](http://www.ospar.org)>).

<sup>46</sup> B. O’Leary et al. “The first network of marine protected areas (MPAs) in the high seas: The process, the challenges and where next” (2012) 36 *Marine Policy* 598-605 at 598.

<sup>47</sup> See generally, O’Leary et al., *ibid.*, and E.J. Molenaar and A.G. Oude Elferink “Marine protected areas in areas beyond national jurisdiction. The pioneering efforts under the OSPAR Convention” (2009) 5 *Utrecht Law Review* 5-20.

<sup>48</sup> Including NEAFC.

<sup>49</sup> Including the International Council for the Exploration of the Sea (ICES) and the IMO.

<sup>50</sup> O’Leary et al., note 47 at 603.

<sup>51</sup> *Ibid.*

<sup>52</sup> See CBD COP 7 Dec. VII/5 ‘Marine and coastal biodiversity’, paras. 29-31. The parties to the CBD have effectively deferred to the UNGA with respect to the creation of a regulatory framework for regulating activities beyond national jurisdiction. However, the CBD is still engaged in this process, in particular, in connection with the provision of technical or scientific advice. For example, in 2008, the CBD developed a set of scientific criteria for identifying ecologically or biologically significant areas in open-ocean and waters and deep-sea habitats. See CBD COP 9 Dec. IX/20 ‘Marine and Coastal Biodiversity’.

jurisdiction (BBNJ Working Group).<sup>53</sup> The Working Group concluded its initial mandate in 2011 and formally recommended that the UNGA initiate a process to develop a regulatory regime of application to areas beyond national jurisdiction (ABNJ).<sup>54</sup> Importantly for the purposes of this chapter, the Working Group highlighted MPAs as a key conservation tool for environmental protection within ABNJ.<sup>55</sup> The report of the Working Group was adopted by the UNGA in December 2011, and the Assembly renewed the Group’s mandate, charging it with the task of initiating the process of developing a legal regime of application to ABNJ.<sup>56</sup> The work of the Group has been recently endorsed in the Rio+20 outcome document, which noted the urgent need to consider “the issue of conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction including by taking a decision on the development of an international instrument under UNCLOS.”<sup>57</sup> Given that much of the Southern Ocean comprises areas beyond national jurisdiction, these international initiatives provide the necessary context within which regional developments - under the ATS - take place. Furthermore, these international initiatives will ultimately directly shape and influence processes in relation to, and the substance of, MPAs designated at the regional level. As will be discussed further below,<sup>58</sup> it is consequently necessary that regional institutions with responsibility for marine protection in the Southern Ocean, namely the ATCM and CCAMLR, engage both directly and indirectly with these international institutions and with the deliberative processes relating to high seas MPA designation.

#### SOUTHERN OCEAN MPAS UNDER NATIONAL JURISDICTION

The Southern Ocean largely but does not exclusively comprise high seas. Within the subantarctic, which is generally considered to lie between the Antarctic and the sub-tropical convergences,<sup>59</sup> six states exercise sovereignty over maritime zones associated with thirteen small island territories.<sup>60</sup> Moreover, seven states<sup>61</sup> maintain historical claims to the continent

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<sup>53</sup> UNGA Res. 59/24 ‘Oceans and the Law of the Sea’, of 17 November 2004, para. 73.

<sup>54</sup> See doc. A/66/119, of 30 June 2011, at para. I.(1)(a).

<sup>55</sup> *Ibid.*

<sup>56</sup> UNGA Res. 66/231 ‘Oceans and the Law of the Sea’, of 24 December 2011, paras. 165-168. The first meeting of the Working Group took place in May 2012 and the importance of area-based management tools to support ecosystem based management was noted (see doc. A/67/95, of 13 June 2012, at para. 20).

<sup>57</sup> UNGA Res. 66/288, note 37 at para. 162. See also para. 177 in which the importance of area based conservation measures, including MPAs were endorsed.

<sup>58</sup> See section ‘Southern Ocean MPAs beyond National Jurisdiction’.

<sup>59</sup> Unlike the Antarctic, which for the purposes of international law is defined as the area south of 60° S under art. VI of the Antarctic Treaty, there is no definitive - legal or scientific - definition of the subantarctic. The definition used here is that preferred by oceanographers (in contrast to terrestrial scientists) and is particularly suited to a focus on the marine environment (see V.R. Smith and R.I. Lewis Smith “The Biota and Conservation Status of Sub-Antarctic Islands” (1987) 13 *Environment International* 95-104 at 95).

<sup>60</sup> Australia (Heard and McDonald Islands (HIMI); Macquarie Island; France (Crozet Islands; Kerguelen Islands); New Zealand (Auckland Islands; Campbell Island; Bounty Islands; Antipodes Islands; The Snares); Norway (Bouvet Island); South Africa (Prince Edward Islands); and the United Kingdom (South Georgia and the South Sandwich Islands). Although the Falkland Islands lie further south than a number of the subantarctic islands they benefit from a relatively temperate climate and are not generally considered to be part of the group of subantarctic islands.

<sup>61</sup> Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom.

of Antarctica and include within those claims an associated maritime zone. However, since 1959 these claims have been held in abeyance by article IV of the Antarctic Treaty, which preserves historical claims and bases of claims acquired prior to that date, but prohibits the making of new or extended claims.<sup>62</sup> Nevertheless, one state - Australia - has designated its exclusive economic zone (EEZ) in the Australian Antarctic Territory (AAT)<sup>63</sup> a whale sanctuary under section 225 of the Environment Protection and Biodiversity Conservation Act 1999. To date, however, owing to the sovereign sensitivities associated with its claim, Australia has refrained from taking action to enforce the terms of the AAT whale sanctuary against foreign nationals.<sup>64</sup> Moreover, the sanctuary, like the EEZ itself, is not generally recognised by the international community.<sup>65</sup> In conservation terms the AAT whale sanctuary constitutes little more than a paper MPA - although its terms are enforceable against Australian nationals and vessels - and consequently, it will not be considered further for the purposes of this chapter.<sup>66</sup>

By contrast, as noted above, the waters surrounding the subantarctic islands are among the best protected in the world.<sup>67</sup> All thirteen islands (or island groups) are noted for their remoteness, high proportion of endemic species<sup>68</sup> and particular vulnerability to threats including invasive species,<sup>69</sup> climate change<sup>70</sup> and over-fishing.<sup>71</sup> None of the islands support a permanent population although most host scientific personnel and are visited by tourists over the summer months. New Zealand’s subantarctic islands are unique in that an indigenous population – Maori – maintain an interest in the islands. In particular, Ngai Tahu Whanui claims *mana whenua*<sup>72</sup> over the five subantarctic islands on the basis of traditional rights over resources exercised by Ngai Tahu (and other *iwi*) in the early 1800s and preserved by the 1840 Treaty of Waitangi.<sup>73</sup> Twelve islands (or island groups) are managed as part of the metropolitan territory of the state exercising sovereignty over the islands. South Georgia and the South

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<sup>62</sup> For a discussion of art. IV of the Antarctic Treaty see K.N. Scott “Managing Sovereignty and Jurisdictional Disputes in the Antarctic: The Next Fifty Years” (2009) 20 *Yearbook of International Environmental Law* 3-40 at 8-14.

<sup>63</sup> Sea and Submerged Lands Act 1973, Proclamation, Commonwealth of Australia Gazette (Special), No. S290, 29 July 1994 (1994).

<sup>64</sup> In 2008 an Australian-based non-governmental organisation, Humane Society International, successfully sought an injunction in the domestic courts against a Japanese whaling company that was engaged in scientific whaling in the AAT. However, it did not prove possible to enforce this injunction and the Australian government was unwilling to take the matter further (see *Humane Society International v. Kyodo Senpaku Kaisha Ltd* [2004] F.C.A. 1510; [2005] F.C.A. 665; [2006] F.C.A.F.C. 116; [2008] F.C.A. 3). For an analysis of the issues arising from this litigation see the special issue of the *Asia Pacific Journal of Environmental Law* 111(3) and (4) (2008).

<sup>65</sup> Only New Zealand, France, Norway and the United Kingdom recognise Australia’s claim to the Antarctic.

<sup>66</sup> See further Mossop, chapter 12, this volume.

<sup>67</sup> Spalding, Fish and Wood, note 20 at 224. See generally M.S. de Villiers “Conservation at the Southern Ocean Islands: Towards the Development of Best Practice Guidelines” (2006) 76 *Polarforschung* 113-131.

<sup>68</sup> Smith and Lewis Smith, note 59.

<sup>69</sup> S.L. Chown, J.E. Lee and J.D. Shaw “Conservation of Southern Ocean Islands: invertebrates as exemplars” (2008) 12 *Journal of Insect Conservation* 277-291 at 282.

<sup>70</sup> *Ibid.* Impacts are likely to include rising temperatures and declining rainfall.

<sup>71</sup> D.R. Rothwell “Conservation and Management Frameworks for Sub-Antarctic International Waters” (2007) 13 *Papers and Proceedings of the Royal Society of Tasmania* 149-157 at 154.

<sup>72</sup> Rights of authority over land.

<sup>73</sup> Department of Conservation, *Marine protection for the New Zealand subantarctic islands: a background resource document* (Department of Conservation, Wellington: 2006) at 24.

Sandwich Islands however, is a United Kingdom Overseas Territory<sup>74</sup> with its own constitution, administered by a Commissioner.<sup>75</sup> All of these islands with the exception of Bouvet Island (Norway) benefit from the designation of MPAs within all or part of their maritime zones.

Both Macquarie Island and Heard Island and McDonald Islands (HIMI) were awarded World Heritage status on the application of Australia in 1997 and that status applies to the waters surrounding both islands up to a limit of 12 nm. At the national level, the EEZs surrounding both islands are designated a whale sanctuary under the 1999 Environment Protection and Biodiversity Conservation Act. Additionally, the sea surrounding Macquarie Island extending 3 nautical miles (nm) offshore has been designated a marine reserve under the Nature Conservation Act 2002 (Tasmania) and the Fisheries Rules 1999 (Tasmania). Approximately one third of the EEZ surrounding Macquarie, amounting to 16.2 million ha, is designated a marine park under the 1999 Environment Protection and Biodiversity Conservation Act. Activities taking place within the marine park must be consistent with the management plan adopted for the park<sup>76</sup> and currently, tourism, commercial fishing<sup>77</sup> and scientific research may only take place subject to individual approval from the Director of National Parks. Vessels transiting the park may do so subject to general approval. The HIMI Marine Reserve was designated in 2002 under section 344 of the Environment Protection and Biodiversity Act 1999 and covers approximately 6.5 million hectares. A Management Plan for the reserve was adopted in 2005<sup>78</sup> and provides for similarly stringent conditions in connection with access to and activities taking place within the marine reserve. In particular, the reserve benefits from full protection from fishing activities and all other activities are subject to an environmental impact assessment where they are predicted to have a greater than “negligible” impact on the marine environment.<sup>79</sup> Notably both MPAs are comprehensive in that they seek to manage *all* activities taking place therein and, importantly, both employ graduated zones of protection based on the International Union for Conservation of Nature (IUCN) categories of protected areas<sup>80</sup> and are consequently able to respond to variations in ecosystem vulnerability.<sup>81</sup>

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<sup>74</sup> Until 1985 South Georgia and the South Sandwich Islands was a Dependency of the Falkland Islands.

<sup>75</sup> Currently the Commissioner is also the Governor of the Falkland Islands and is based in Stanley in the Falkland Islands.

<sup>76</sup> The Macquarie Island Commonwealth Marine Reserve Management Plan (available at <[www.environment.gov.au/coasts/mpa/publications/pubs/macquarie-plan.pdf](http://www.environment.gov.au/coasts/mpa/publications/pubs/macquarie-plan.pdf)>) expired in 2008 and interim arrangements are currently in place until a new plan is adopted.

<sup>77</sup> It should be noted that a trawl fishery for Patagonian toothfish has operated in the Macquarie Island EEZ since 1994.

<sup>78</sup> Available at <[www.heardisland.aq/\\_data/assets/pdf\\_file/0006/2112/HIMIMR\\_MP.pdf](http://www.heardisland.aq/_data/assets/pdf_file/0006/2112/HIMIMR_MP.pdf)>.

<sup>79</sup> 2005 Heard Island and McDonald Island Management Plan (2005), at 38.

<sup>80</sup> On the IUCN protected area criteria see Lalonde, chapter 5, this volume.

<sup>81</sup> For a more general discussion of the Australian subantarctic see L.K. Kriwoken and N. Holmes “Emerging Issues of Australia’s Sub-Antarctic Islands: Macquarie Island and Heard Islands and McDonald Islands” in L.K. Kriwoken, J. Jabour and A.D. Hemmings (eds), *Looking South: Australia’s Antarctic Agenda* (The Federation Press, Sydney: 2007) 149-164.

The New Zealand subantarctic islands (The Snares, Bounty Islands, Antipodes Island, Campbell Island and the Auckland Islands) were awarded World Heritage status in 1998<sup>82</sup> and that status extends to the waters surrounding those islands out to 12 nm.<sup>83</sup> Currently, only the Auckland Islands benefits from an MPA; the Auckland Islands/Motu Maha Marine Reserve designated in 2003 under the 1971 Marine Reserves Act.<sup>84</sup> The reserve extends out to 12 nm and covers approximately 484,000 ha. Within the reserve no commercial or recreational fishing may take place and there are controls on the number and activities of tourist vessels operating therein. The Subantarctic Islands Marine Reserves Bill is currently before the New Zealand Parliament<sup>85</sup> and, on its adoption, will create the Moutere Mahue/Antipodes Island Marine Reserve, the Moutere Hauriri/Bounty Islands Marine Reserve and the Moutere Ihupuki/Campbell Island Marine Reserve. All three reserves will be treated as if they were declared under the Marine Reserves Act 1971. The proposed reserves are consistent with and supportive of the more general conservation aims as set out in the proposed regional coastal plan for the Kermadec and subantarctic islands released in early 2011<sup>86</sup> as well as the New Zealand Marine Protected Areas Policy and Implementation Plan, adopted in 2006.<sup>87</sup>

The Kerguelen and Crozet Islands benefit from an MPA designated by France in 2006, which extends out to 12nm. Within these MPAs fishing is prohibited and other activities such as tourism are subject to permission.<sup>88</sup>

The most recent subantarctic MPA to be established was announced on 27 February 2012 by the Government of South Georgia and the South Sandwich Islands.<sup>89</sup> The South Georgia and South Sandwich Islands MPA will cover an area of over 1 million km<sup>2</sup> and includes a no-take zone of over 20,000 km<sup>2</sup>. Within the MPA commercial bottom trawling is prohibited and commercial bottom fishing (primarily long-lining) will be restricted to depths greater than 700m in order to protect benthic biodiversity and juvenile toothfish.<sup>90</sup> More generally, the objectives of the MPA are to: conserve habitats and ecosystem function; manage fisheries sustainably; manage other activities including shipping and scientific research to

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<sup>82</sup> For background information on the New Zealand sub-Antarctic islands see Department of Conservation, *Marine protection for the New Zealand subantarctic islands: a background resource document* (Department of Conservation, Wellington: 2006).

<sup>83</sup> See <[www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/marine-protected-areas/marine-protection-nz-subantarctic-islands.pdf](http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/marine-protected-areas/marine-protection-nz-subantarctic-islands.pdf)>.

<sup>84</sup> The marine reserve was converted from a marine mammal sanctuary originally established in 1993 to protect the Southern right whale during its breeding season.

<sup>85</sup> The Bill has yet to receive its first reading.

<sup>86</sup> The proposed regional coastal plan for the Kermadec and subantarctic islands was prepared pursuant to section 31A of the 1991 Resource Management Act. It has not yet been adopted but is available at [www.doc.govt.nz/upload/documents/getting-involved/consultations/current-consultations/offshore-islands/prcp-kermadec-subantarctic-islands.pdf](http://www.doc.govt.nz/upload/documents/getting-involved/consultations/current-consultations/offshore-islands/prcp-kermadec-subantarctic-islands.pdf).

<sup>87</sup> The MPA Policy is available at <[www.biodiversity.govt.nz/pdfs/seas/MPA-Policy-and-Implementation-Plan.pdf](http://www.biodiversity.govt.nz/pdfs/seas/MPA-Policy-and-Implementation-Plan.pdf)>.

<sup>88</sup> *Décret n. 2006-2011 du 3 octobre 2006 portant creation de la reserve naturelle des Terres australes françaises*, *Journal Officiel de la République Française*, 4 octobre 2006, Texte 24 sur 112. With thanks to Annick Masselot, University of Canterbury, for the translation of this regulation.

<sup>89</sup> Marine Protected Areas Order 2012 (S.R. & O. No. 1 of 2012) (reproduced in the South Georgia and South Sandwich Islands Gazette, No. 1, 29 February 2012).

<sup>90</sup> Press Release: South Georgia and the South Sandwich Islands Marine Protected Area; issued by the Office of the Commissioner, Government House, Stanley, Falkland Islands (no date).

minimise their detrimental impacts on the environment; prevent the introduction of non-native marine species; and to increase the resilience of the marine environment to the effects of climate change.<sup>91</sup>

Finally, the waters surrounding the Prince Edward Islands are in the process of being designated an MPA by South Africa<sup>92</sup> and are also under consideration pursuant to the World Heritage Convention for possible designation as a World Heritage Site. It is envisaged that the MPA currently being developed by South Africa will: contribute to the creation of a network of representative MPAs in South African waters; contribute to scientific knowledge by providing a reference point from which climate induced change might be measured; and support the recovery of the Patagonian toothfish and a reduction in seabird by-catch.<sup>93</sup>

MPAs in the subantarctic are noteworthy not only for their relative extent but also for their comprehensive coverage. Most of the MPAs established, and those in the process of being created, permit the management of a range of activities; fishing, scientific research, tourism and, to a lesser extent, shipping. This reflects the modern conception of the MPA, as a tool to facilitate the integrated, ecosystem-based management of an area or region. As such, practice in the subantarctic - which might be described in some cases as approaching best practice - could be learned from, and usefully be deployed in the Antarctic by institutions such as the ATCM and CCAMLR.

#### SOUTHERN OCEAN MPAS BEYOND NATIONAL JURISDICTION

By area, most of the Southern Ocean lies beyond national jurisdiction and constitutes high seas. As noted above, the status of the waters immediately adjacent to the coast of Antarctica is uncertain. All seven claimant states assert jurisdiction over a territorial sea and continental shelf,<sup>94</sup> and two states also lay claim to an EEZ<sup>95</sup> but these claims are generally unrecognised by the international community.<sup>96</sup> In practice, for the purposes of marine environmental protection and conservation, the Southern Ocean beyond the maritime zones associated with uncontested subantarctic territories,<sup>97</sup> is pragmatically subjected to the high seas regime by all states, as modified by the ATS for those states party to the Treaty and its associated instruments.

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<sup>91</sup> Marine Protected Areas Order 2012, section 4.

<sup>92</sup> See Draft Notice Declaring the Prince Edward Islands Marine Protected Area (Notice 429 of 2009) reproduced in the *Government Gazette*, 8 May 2009 No. 32198 at 125-126.

<sup>93</sup> A.T. Lombard et al. “Conserving pattern and process in the Southern Ocean: Designing a Marine Protected Area for the Prince Edward Islands” (2007) 19 *Antarctic Science* 39-54 at 40.

<sup>94</sup> The outer limits of the continental shelf claims have yet to be determined.

<sup>95</sup> France claimed an EEZ in 1973 and Australia in 1994. See P. Vigni “Antarctic Maritime Claims: “Frozen Sovereignty” and the Law of the Sea” in A.G. Oude Elferink and D.R. Rothwell (eds) *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (Martinus Nijhoff Publishers, The Hague: 2001) 85-104 at 104. It should be noted that Chile asserted jurisdiction over 200 nm when making its original claim in 1947 and Argentina asserted rights over 200 nm after the Antarctic Treaty was adopted but before the negotiations on the LOS Convention began. See P.W. Quigg *A Pole Apart: The Emerging Issue of Antarctica* (New Press, New York: 1983) at 173.

<sup>96</sup> See Scott, chapter 2, this volume.

<sup>97</sup> Although Argentina contests British sovereignty over South Georgia and the South Sandwich Islands, no state maintains, in contrast to Antarctica, that sovereignty cannot in principle be asserted over the islands.

## Southern Ocean MPAs Established by Global Institutions<sup>98</sup>

As noted above, to date relatively few MPAs have been designated on the high seas. However, the Southern Ocean (or at least parts thereof) benefits from two MPAs established by international organisations operating outside of the ATS.

First, the area south of 60° S has been declared a special area for the purposes of Annexes I (oil), II (noxious liquid substances) and V (garbage) to the MARPOL.<sup>99</sup> Within the Antarctic special area, which coincides geographically with the Antarctic Treaty area,<sup>100</sup> discharges of the regulated substances are either prohibited or controlled more strictly as compared to other locations. Moreover, marine environmental protection in the Antarctic Treaty area has recently been strengthened at the international level. In 2007 and 2009 respectively, the IMO adopted guidelines for ballast water exchange within the Antarctic Treaty area,<sup>101</sup> and, more generally, guidelines for ships operating in Polar waters.<sup>102</sup> Furthermore, in August 2011, an IMO ban on vessels carrying or using heavy fuel oil within the Antarctic Treaty area entered into force.<sup>103</sup> It is notable that all three measures adopted since 2007 had their origins within the ATCM,<sup>104</sup> which subsequently requested that they be adopted by the IMO in order to apply them to all vessels operating in the Antarctic.

The second international MPA comprises the Southern Ocean Sanctuary established by the International Whaling Commission in 1994. Within the Sanctuary, which is roughly coterminous with the area south of the Antarctic Convergence, all commercial whaling is prohibited.<sup>105</sup> The Sanctuary does not prohibit the capture of whales for scientific purposes<sup>106</sup> and Australia and Japan are currently in dispute as to whether Japan’s on-going whaling activities are in compliance with the conditions of the Sanctuary and the ICRW more generally.<sup>107</sup>

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<sup>98</sup> For an overview of the application of environmental instruments containing MPA obligations to the Antarctic see S.M. Grant “The applicability of international conservation instruments to the establishment of marine protected areas in Antarctica” (2005) 48 *Ocean and Coastal Management* 782-812.

<sup>99</sup> MARPOL, Annex I, Reg. 1.11.7; Annex II, Reg. 13.8.1; Annex V, Reg. 5(1)(g).

<sup>100</sup> In 2009 the ATCM adopted Res. 1 in which they recommended that CCAMLR be asked provide its views on whether the IMO should be asked to extend the MARPOL special areas to cover the area between the Antarctic Treaty area and the Antarctic Convergence (essentially, the CAMLR Convention area). This proposal was discussed by CCAMLR in 2009 but members were divided on the issue and no decision was taken (see the Report of the 28<sup>th</sup> (2009) Annual CCAMLR Meeting (available at <www.ccamlr.org>), at paras. 14.8-14.12.

<sup>101</sup> Res. MEPC.163(56), of 13 July 2007, ‘Guidelines for Ballast Water Exchange in the Antarctic Treaty Area’.

<sup>102</sup> Res. A.1024(26), of 2 December 2009, ‘Guidelines for Ships Operating in Polar Waters’ (Polar Shipping Guidelines).

<sup>103</sup> Res. MEPC.189(60), of 26 March 2010, inserts a new Ch. 9 into Annex I of MARPOL and prohibits vessels carrying or using heavy fuel oil in the Antarctic Treaty area. The ban was originally developed on a regional basis by the ATCM in 2005. See ATCM Dec. 8 (2005) ‘Use of Heavy Fuel Oil (HFO) in Antarctica’.

<sup>104</sup> See the discussion accompanying notes 114 and 115 below.

<sup>105</sup> See art. 7(b) of the Schedule attached to the ICRW. See generally E. Morgera “Whale Sanctuaries: An Evolving Concept within the International Whaling Commission” (2004) 35 *Ocean Development and International Law* 319-338 and Mossop, chapter 12, this volume. It should be noted that Japan has entered a reservation in respect of art. 7(b) of the Schedule to the extent that it applies to Antarctic minke whale stocks.

<sup>106</sup> Scientific whaling is permitted at the discretion of the authorising state under art. VIII of the ICRW.

<sup>107</sup> The dispute was submitted to the International Court of Justice in 2010.

The MARPOL Antarctic special area together with the other IMO regulations noted above, as well as the Southern Ocean Sanctuary, are international in scope and consequently, their associated regulatory provisions are applicable to vessels registered to states party to the MARPOL or the ICRW; the former convention having virtually universal participation. However, they are both strictly one dimensional MPAs, supporting a single purpose: the avoidance of vessel-source pollution<sup>108</sup> or the prohibition on the commercial capture of whales. Neither MPA can be said to support integrated ecosystem-based management of activities taking place within the Southern Ocean. A more integrated approach to spatial management is, however, emerging in the developing practice of the institutions located within the ATS itself.

### MPAs and the Madrid Protocol to the Antarctic Treaty

Article 2 of the Madrid Protocol designates Antarctica as a “natural reserve, devoted to peace and science.” For the purposes of the Protocol, Antarctica or the Antarctic Treaty area is defined as the area south of 60° S and includes a significant marine component.<sup>109</sup> Whether article 2 of the Protocol has distinct legal as opposed to merely symbolic implications is debatable.<sup>110</sup> However, the Antarctic Treaty area undoubtedly enjoys “a higher level of protection than its surroundings”<sup>111</sup> owing to a number of provisions within both the Antarctic Treaty and the Madrid Protocol. For example, all activities other than fishing, but including scientific research and tourism likely to have a transitory or minor impact on the environment, are subject to the environmental impact assessment requirements under article 8 and Annex I of the Protocol. All activities within the Antarctic Treaty area must be conducted so as to minimise their detrimental impacts on the quality of water and the abundance of species under article 3 of the Protocol. The taking of or interference with species not covered by the CAMLR Convention, the ICRW and the CCAS,<sup>112</sup> is subject to the permitting requirements under Annex II of the Protocol.<sup>113</sup> Vessels registered to states party to the Antarctic Treaty should comply with the ATCM’s Guidelines for Ships Operating in Arctic and Antarctic Ice-covered Waters<sup>114</sup> and the special conditions relating to the exchange of ballast water agreed by the ATCM in

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<sup>108</sup> Although the adoption of the Polar Shipping Guidelines address issues other than discharges from vessels (such as the construction, equipment and operational requirements of vessels operating in polar waters) these are currently recommendatory only.

<sup>109</sup> Art. 1(b).

<sup>110</sup> See C. Redgwell “Environmental Protection in Antarctica: The 1991 Protocol” (1994) 43 *International and Comparative Law Quarterly* 599-634 at 606.

<sup>111</sup> To return to the definition of an MPA identified at the outset of this chapter, see note 26 and accompanying text.

<sup>112</sup> Convention for the Conservation of Antarctic Seals of 1 June 1972 (1080 UNTS 176).

<sup>113</sup> The exclusions from Annex II are primarily marine focused and largely restrict the application of Annex II to the terrestrial environment.

<sup>114</sup> ATCM Dec. 4 (2004) ‘Guidelines for Ships Operating in Arctic and Antarctic Ice-covered Waters’. In 2004 the ATCM formally requested that the IMO consider these guidelines with a view to their being adopted at the IMO; which eventually led to the Polar Shipping Guidelines, note 102. The IMO is currently in the process of further revising these guidelines in order to develop a mandatory Polar Code. See Boone, chapter 9 in this volume.

2006.<sup>115</sup> The oldest environmental requirement can be found in the Antarctic Treaty itself: a ban on the disposal of radioactive waste material in the Antarctic Treaty area.<sup>116</sup> Although not commonly described as an MPA, the maritime component of the Antarctic Treaty area undoubtedly benefits from a comparatively high level of protection in comparison with the surrounding area, which is relatively comprehensive in nature. This, combined with the Protocol’s emphasis on environmental impact assessment, supports a level of integrated ecosystem-based management within the area, which compares favourably to other high seas areas, including in the Arctic.<sup>117</sup>

More specifically, protected area designation within the Antarctic Treaty area is identified as a key tool for conservation under Annex V of the Madrid Protocol. Annex V permits the creation of Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMAs) in order to protect environmental, scientific, historic, aesthetic or wilderness values.<sup>118</sup> The purpose of an ASPA is to strictly manage (or even prohibit) activities taking place therein in order to provide for a high level of protection of the area.<sup>119</sup> ASMAs on the other hand, are designated for the purpose of improving the management of a vulnerable region through co-ordinating activities, facilitating cooperation and minimising conflicts.<sup>120</sup> Management plans must be adopted in respect of both ASPAs and ASMAs.<sup>121</sup> Although protected areas may be designated within the marine environment,<sup>122</sup> only five of the 71 ASPAs established thus far constitute MPAs<sup>123</sup> although a further six ASPAs include a substantial marine component.<sup>124</sup> No ASMA of sole application to the marine environment has been established to date although two of the seven ASMAs currently in existence include a substantial marine component.<sup>125</sup> That there are only two marine-based ASMAs is rather surprising given that the nature and purpose of ASMAs - managing co-located activities and minimising conflict - is entirely consistent with the function of the modern MPA. Article 6 of Annex V to the Protocol provides for cooperation and coordination between the ATCM and CCAMLR with respect to ASPAs and ASMAs that include a marine component. Most

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<sup>115</sup> ATCM Res. 3 (2006) ‘Ballast Water Exchange’. These guidelines have been adopted by the IMO, which recommends that vessels from all states apply them when operating within the Antarctic Treaty area (Res. MEPC.163(56), note 101).

<sup>116</sup> Art. V.

<sup>117</sup> Nevertheless, as yet, the parties to the Antarctic Treaty have failed to embrace strategic environmental impact assessment for either the continent or the marine environment.

<sup>118</sup> Art. 2.

<sup>119</sup> Art. 3.

<sup>120</sup> Art. 4.

<sup>121</sup> Art. 5.

<sup>122</sup> Arts. 2, 3(1) and 4(1).

<sup>123</sup> ASPA No. 144 ((Chile Bay, Greenwich Island, South Shetland Islands); ASPA No. 146 (South Bay, Doumer Island, Palmer Archipelago); ASPA No. 152 (Western Bransfield Strait); ASPA No. 153 (Eastern Dallmann Bay); ASPA No. 161 (Terra Nova Bay, Ross Sea).

<sup>124</sup> ASPA No. 107 (Emperor Island, Dion Islands, Marguerite Bay, Antarctic Peninsula); ASPA No. 113 (Litchfield Island, Arthur Harbor, Anvers Island, Palmer Archipelago); ASPA No. 114 (Northern Coronation Island, South Orkney Islands); ASPA No. 121 (Cape Royds, Ross Island); ASPA No. 145 (Port Foster, Deception Island, South Shetland Islands); ASPA No. 169 (Amanda Bay, Ingrid Christensen coast, Princess Elizabeth Land, East Antarctica). It should be noted that a number of other ASPAs include a small marine component.

<sup>125</sup> ASMA No. 1 (Admiralty Bay, King George Island); ASMA No. 7 (Southwest Anvers Island and Palmer Basin).

importantly, CCAMLR must approve the designation of a marine-based ASPA or ASMA where the designation may impact on harvesting or other CCAMLR activities.<sup>126</sup> This is a particularly significant innovation which deliberately provides a mechanism to bring together the Antarctic institutions responsible for the management of all marine-based activities, including fishing, during the process of MPA designation. Such coordination does not generally happen at the international level - at least with respect to environmental management on the high seas<sup>127</sup> - and this practice within the ATS undoubtedly represents an example of best practice that could usefully be adopted in other regions.

Nevertheless, there are significant limitations associated with the current practice of designating MPAs under the Madrid Protocol.

First, despite the requirement that ASPAs be designated within “a systematic environmental-geographical framework”<sup>128</sup> there has been no real attempt thus far to develop a network of representative protected areas to meet the goals as set out in the 2002 WSSD Report and the CBD biodiversity targets.<sup>129</sup> This criticism has been acknowledged by the Antarctic Treaty parties,<sup>130</sup> and in guidelines for the preparation of management plans for ASPAs adopted in 2011,<sup>131</sup> the parties responded by adopting Environmental Domains Analysis as a key tool in developing a network of representative protective areas within “a systematic environmental-geographical framework.”<sup>132</sup> However, Environmental Domains Analysis is primarily a terrestrial tool and the parties to the Antarctic Treaty have effectively delegated the task of developing a network of representative MPAs to CCAMLR.<sup>133</sup> Nevertheless, at the first joint workshop on MPAs between the Scientific Committee of CCAMLR and the CEP held in 2009, it was agreed that both institutions should “take a harmonised approach to the development of a representative system of MPAs.”<sup>134</sup> More generally, MPAs may be designated under Annex V of the Madrid Protocol within the Antarctic Treaty area, which coincides with but does not fully encompass the Antarctic marine ecosystem. This restriction is acknowledged in several articles in the Madrid Protocol where the “Antarctic environment and dependent and associated ecosystems” are commonly referred to.<sup>135</sup> However, despite these references it is not apparent that obligations under the Protocol can be explicitly applied beyond the Antarctic Treaty area. In 2009 the ATCM adopted a

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<sup>126</sup> Art. 6(2) and ATCM Dec. 9 (2005) ‘Marine Protected Areas and Other Areas of Interest to CCAMLR’. See also ATCM Res. 1 (2006) ‘CCAMLR in the Antarctic Treaty System’.

<sup>127</sup> As noted above, the OSPAR Commission has recently entered into cooperative arrangements with selected RFMOs with respect to the management of its network of high seas MPAs. This is the only other example to date of a formal cooperative arrangement between fishery and regional seas institutions.

<sup>128</sup> Madrid Protocol, Annex V, art. 3(2).

<sup>129</sup> S.L. Chown et al., note 8 at 158.

<sup>130</sup> See United Kingdom, Antarctica’s Future Environmental Challenges: A Summary Report of the CEP Workshop, Edinburgh 9-10 June 2006 (WP 42, 2006; available at <www.ats.aq>).

<sup>131</sup> ATCM Res. 2 (2011) ‘Revised Guide to the Preparation of Management Plans for Antarctic Specially Protected Areas’. See also ATCM Res. 3 (2008) ‘Environmental domains analysis for the Antarctic continent as a dynamic model for systematic environmental geographic framework’.

<sup>132</sup> ATCM Res. 2 (2011), note 131, at 2.

<sup>133</sup> *Summary of the Work of the CEP on Marine Protected Areas* (updated August 2011) (doc. SP 6, submitted by CEP to the XXXIVth (2011) ATCM), at p 8.

<sup>134</sup> *Report of the Joint CEP/SC-CAMLR Workshop* (doc. WP 55, submitted by France et al. to the XXXIIth (2009) ATCM).

<sup>135</sup> Arts. 2, 3, 8, 15 and 16.

Resolution recommending that parties cooperate “consistent with the Protocol on Environmental Protection and in accordance with international law, to enhance the environmental protection for the *entire* Antarctic marine ecosystem.”<sup>136</sup> Despite a statement of apparent enthusiasm for extending the scope of the Protocol, ATCM Resolution 1 (2009) is non-binding and it would be difficult to rely on the Resolution alone as a mechanism to amend or even interpret Annex V to authorise the establishment of MPAs beyond the boundaries of the Antarctic Treaty area. A better approach would be to formally amend the Protocol to extend its scope and it is argued that such an amendment is eminently desirable in light of the international goals noted above to establish a network of representative MPAs, the requirement to cooperate and co-ordinate with CCAMLR - which exercises jurisdiction up to the Antarctic Convergence - in the designation of MPAs and the enthusiasm for broadening the scope for marine environmental protection as demonstrated by the ATCM in its adoption of Resolution 1 (2009).

Second, thus far, MPAs designated under Annex V of the Madrid Protocol demonstrate a narrow regulatory focus and have not been developed in order to support broader conservation goals such as the management of Antarctic tourism or scientific research. For example, with two limited exceptions, no Annex V MPA restricts rights relating to navigation (including anchoring) with respect to tourist or other vessels registered to Protocol parties.<sup>137</sup> Similarly, no Annex V MPA requires vessels to comply with the (otherwise voluntary) requirements adopted by the ATCM in connection with its management of ballast water<sup>138</sup> or as provided for in its Shipping Guidelines.<sup>139</sup> Moreover, ASPA restrictions connected to scientific research in general relate to controls on biodiversity sampling; no Annex V MPA provides for a general prohibition on ocean fertilization research, for example, or controls the deployment of seismic surveys for research purposes. In short, Annex V MPAs make a negligible contribution to the implementation of integrated and ecosystem-based management within the Antarctic Treaty area that is in the process of being developed by the Madrid Protocol more generally. This represents a significant lost opportunity for the development of Antarctic environmental protection.

## MPAs and the CAMLR Convention

The CAMLR Convention applies to all living resources found south of the Antarctic Convergence; the entire Antarctic marine ecosystem.<sup>140</sup> To the extent that the CAMLR

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<sup>136</sup> ATCM Res. 1 (2009) ‘Enhancement of Environmental Protection up to the Antarctic Convergence’ (emphasis added).

<sup>137</sup> The management plan for ASMA No. 1 (Admiralty Bay) limits the number of anchoring ships within Mackeller, Martel and Ezcurra Inlets. The management plan for ASMA No. 7 (Southwest Anvers Island and Palmer Basin) limits the movement of vessels within designated restricted zones that extend 50 metres from the coast. It should be noted that the navigational rights of vessels registered to states not party to the Madrid Protocol would not be abrogated or otherwise restricted by the designation of ASPAs or ASMAs. For a more general discussion of the relationship between MPAs and navigational rights see F. Spadi “Navigation in Marine Protected Areas: National and International Law” (2000) 31 *Ocean Development and International Law* 285-302.

<sup>138</sup> Note 115.

<sup>139</sup> Note 114.

<sup>140</sup> Art. I.

Convention area is subject to over 100 Conservation Measures and Resolutions relating to all aspects of fishing, and thus benefits from a higher level of protection than its surroundings, the area undoubtedly constitutes an MPA, largely (but not exclusively) comprising the high seas.<sup>141</sup> More specifically, however, the legal basis for the designation of MPAs within the CCAMLR Convention area can be found in article II(a) of the Convention, which identifies the conservation of Antarctic marine living resources as the objective of the regime and articles IX(2) (f) and (g) that permit the designation of open and closed seasons for harvesting and open and closed areas “for the purpose of scientific study or conservation, including special areas for protection and scientific study.” MPAs were identified as an important conservation tool by CCAMLR in 2005.<sup>142</sup> CCAMLR subsequently initiated a study on the bioregionalisation of the Southern Ocean, which was designed to “classify marine areas from a range of data on environmental attributes”.<sup>143</sup> On the basis of this study, eleven priority areas were identified as providing a possible basis for developing a network of representative MPAs.<sup>144</sup> In 2011, the eleven priority areas were added to and rationalised into nine planning domains.<sup>145</sup> At the same meeting CCAMLR adopted a general framework measure for the designation of MPAs within the CCAMLR Convention area.<sup>146</sup> The general framework measure sets out key criteria for the designation of MPAs including: the protection of representative marine ecosystems, species and habitats; the establishment of scientific reference areas for long term monitoring; the protection of vulnerable ecosystems; and the protection of areas to maintain resilience or the ability to adapt to the effects of climate change.<sup>147</sup> Each MPA will have associated plans for their management as well as for research and monitoring<sup>148</sup> and these plans as well as the conservation measures establishing MPAs will be made available to interested international organisations and non-party states.<sup>149</sup> Finally, the general framework measure requires the Commission to identify other actions which should be taken by other institutions within the ATS or by other organisations such as the IMO in order to support the objectives of the MPA.<sup>150</sup>

At a CCAMLR workshop on MPAs held in September 2011 it was noted that “[a]lthough some progress has been made since 2005, the geographic coverage, habitat representation and range of values being protected by the existing range of MPAs, remains poor.”<sup>151</sup> Nevertheless, the first in the envisaged network of representative MPAs was

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<sup>141</sup> This was recognised in the *CCAMLR Performance Review Panel Report* (2008; available at <[www.ccamlr.org](http://www.ccamlr.org)>), at para 19.

<sup>142</sup> *Report of the CCAMLR Workshop on Marine Protected Areas*, Silver Spring, USA, 29 August-1 September 2005 at para. 62 (available at <[www.ccamlr.org/en/system/files/e-sc-xxiv-a7.pdf](http://www.ccamlr.org/en/system/files/e-sc-xxiv-a7.pdf)>).

<sup>143</sup> *Ibid.*, para. 107 (fn 4). See the *Report of the 2007 Workshop on Bioregionalisation of the Southern Ocean* reproduced in Annex 9 of the Report of the 26<sup>th</sup> (2007) Annual CCAMLR Scientific Committee Meeting). Bioregionalisation is in essentials the equivalent of Environmental Domains Analysis in the marine environment.

<sup>144</sup> Report of the 27<sup>th</sup> (2008) Annual CCAMLR Meeting, at para. 7.2(vi).

<sup>145</sup> Report of the 30<sup>th</sup> (2011) Annual CCAMLR Meeting, at para. 7.4.

<sup>146</sup> CCAMLR CM 91-04 (2011) ‘General Framework for the establishment of CCAMLR Marine Protected Areas’.

<sup>147</sup> *Ibid.*, para. 2(i)-(vi).

<sup>148</sup> *Ibid.*, paras. 3-5.

<sup>149</sup> *Ibid.*, para. 9.

<sup>150</sup> *Ibid.*, para. 10.

<sup>151</sup> *Ibid.*, para. 2.2.

established by CCAMLR in 2009.<sup>152</sup> The South Orkney Islands southern shelf MPA covers just less than 94,000 km<sup>2</sup> of the high seas within which fishing, scientific research relating to fishing and discharges and dumping from fishing vessels are strictly regulated.<sup>153</sup> In 2012, four additional MPA proposals were discussed at the thirty-first meeting of CCAMLR. These related to the Ross Sea region,<sup>154</sup> Eastern Antarctica<sup>155</sup> and areas exposed by collapsing ice shelves on the Antarctic Peninsula.<sup>156</sup> However, all proposals failed to be adopted, principally as a result of opposition by China and Russia.<sup>157</sup> Nevertheless, the Commission agreed to hold a Special Meeting in Germany in July 2013 in order to further discuss these MPA proposals.<sup>158</sup> The defeat of these MPA proposals at the 2012 meeting raises two important issues connected to the designation and management of high seas MPAs worthy of more general discussion for the purposes of this chapter.

The first issue relates to the relationship between conservation and rational use in the context of MPA designation. To what extent are MPAs and special fisheries restrictions mutually exclusive? The relationship between conservation and rational use proved controversial in the context of the creation of the South Orkney Islands MPA, which was only designated after its boundaries were re-drawn to exclude a commercial fishery.<sup>159</sup> The same issue arose in relation to the proposed Ross Sea MPA; the boundaries proposed by New Zealand at the 2012 CCAMLR meeting deliberately excluded a small but commercially lucrative toothfish fishery, known as the ‘wedge’. By contrast, the United States proposal for the Ross Sea MPA included the toothfish fishing grounds within the MPA boundaries.<sup>160</sup> In relation to the designation of the South Orkney Islands MPA, Japan, South Korea and Russia argued that CCAMLR already provides for the direct regulation of fish stocks and further management of those stocks through the device of an MPA is inappropriate.<sup>161</sup> China also expressed concern over the balance between conservation and rational use and asserted that any MPA network be “limited to a rational proportion of the Convention area so as not to compromise rational use.”<sup>162</sup> On the other hand, many Commission members rejected the

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<sup>152</sup> Note 21.

<sup>153</sup> Ibid.

<sup>154</sup> Both New Zealand and the United States submitted separate proposals for the protection of the Ross Sea region to the 2012 CCAMLR meeting (see docs. CCAMLR-XXXI/16 Rev.1 (2012; New Zealand)) and CCAMLR-XXXI/40 (2012; United States). At the eleventh hour the two states were able to agree to a joint proposal, which was presented to the Commission during the final part of the meeting (Advance copy of the Report of the 31<sup>st</sup> (2012) Annual CCAMLR Meeting, at paras. 7.69-7.75).

<sup>155</sup> Doc. CCAMLR-XXXI/36 (2012; Australia, France and the European Union).

<sup>156</sup> Doc. CCAMLR-XXXI/30 (2012; European Union).

<sup>157</sup> M. Denholm “Antarctic marine parks put on ice” *The Australian*, 3 November 2012; Advance copy of the Report of the 31<sup>st</sup> (2012) Annual CCAMLR Meeting, at paras. 7.60-7.104.

<sup>158</sup> Ibid., paras. 7.105-7.109.

<sup>159</sup> Report of the 28<sup>th</sup> (2009) Annual CCAMLR Scientific Committee Meeting, at para. 7.4.

<sup>160</sup> See B.R. Sharp and G.M. Watters “Marine Protected Area planning by New Zealand and the United States in the Ross Sea region” (2011; CCAMLR doc. WS-MPA-11/25). During the 2012 CCAMLR meeting the United States and New Zealand agreed to a joint proposal, which created a “special research zone” within which light fishing and tagging could occur (Advance copy of the Report of the 31<sup>st</sup> (2012) Annual CCAMLR Meeting, at para. 7.72).

<sup>161</sup> Report of the 28<sup>th</sup> (2009) Annual CCAMLR Scientific Committee Meeting, at paras. 7.4 and 7.5.

<sup>162</sup> Ibid., para. 7.12.

notion that MPAs and fishing activities are mutually exclusive.<sup>163</sup> These states asserted that rational use does not “mean that fishing vessels need to have access to the entire range of a stock. They also noted that this may result in some areas being closed to fishing for conservation, research or monitoring purposes, whilst others may have multiple management purposes including fishing.”<sup>164</sup> The general framework for MPAs<sup>165</sup> set out in CCAMLR Conservation Measure 91-04 (2011) supports an approach which includes fisheries management within an MPA and it is submitted that this is the correct approach. To exclude fisheries management from the scope of an MPA inevitably and arguably, fatally, undermines the effectiveness of that MPA. Nevertheless, the failure to agree to establish an MPA in the Ross Sea region at the 2012 CCAMLR meeting can be attributed to the disagreement between members - including between the two proponents of the MPA - as to how and to what extent fishing activities should be regulated within the MPA.

The second issue relates to the inherently limited competence of CCAMLR and the range of activities that are subject to management and control by the Commission under the Convention. Positively, the general framework measure for CCAMLR MPAs notes that the purposes of MPA designation can extend beyond fisheries protection and can relate to the protection of vulnerable ecosystems and the establishment of scientific reference areas for monitoring natural variability in light of a range of factors including climate change.<sup>166</sup> However, CCAMLR’s competence is limited to fishery related issues although, as the South Orkney Islands MPA demonstrates, that competence extends to fish-related research and issues associated with fishing vessels.<sup>167</sup> However, the Commission is not able to regulate the activities of vessels not connected to fishing, such as tourist vessels, or research unrelated to fish or the more general aims and objectives of the CAMLR Convention. What the Commission can do, and indeed, what it is now required to do under the general framework for CCAMLR MPAs, is to identify other measures which are necessary to support the MPA and to cooperate with other institutions in the adoption of those measures.<sup>168</sup>

#### INSTITUTIONAL RELATIONSHIPS WITHIN AND BEYOND THE ATS

The designation of high seas MPAs within the Southern Ocean benefits from a unique institutional arrangement that is not replicated in any other region: the ATS. The ATS facilitates to an unprecedented extent close cooperation between CCAMLR, the ATCM and the CEP with respect to marine environmental management. In the context of MPAs, these institutional connections have been strengthened through the adoption of explicit requirements to consult, cooperate and jointly approve MPA proposals. In principle this institutional infrastructure should permit the designation of MPAs that serve a range of functions and contribute to the management of several co-located activities such as fishing, tourism and scientific research. In

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<sup>163</sup> Ibid., para. 7.7.

<sup>164</sup> Ibid., para. 7.10.

<sup>165</sup> Note 22.

<sup>166</sup> Ibid., para. 2.

<sup>167</sup> Note 21.

<sup>168</sup> Note 22 at para. 10.

practice, this has yet to occur. It is suggested that the next stage in developing Southern Ocean MPAs is the joint designation of MPAs by CCAMLR and the ATCM, supported by management plans that cover as wide a range of activities as possible in order to implement a robust system of integrated ecosystem management within the region.

Nevertheless, even a robust regional regime for the designation of high seas MPAs is subject to inherent limitations. Areas beyond national jurisdiction are governed by complex jurisdictional arrangements, principally arising from the distinction between rights in relation to the water column and rights over the seabed and its resources. Within an area ostensibly categorised as the ‘high seas’, jurisdiction over the seabed and its non-living resources - including jurisdiction to designate MPAs - will be exercised by either a state<sup>169</sup> or the International Seabed Authority (ISA).<sup>170</sup> Within the Antarctic Treaty area, uncertainty as to the status of the seabed and the relationship between the Treaty and the LOS Convention potentially further complicates the process of MPA designation.<sup>171</sup> Moreover, MPAs designated by regional institutions are only binding on their members. This is a particular issue in respect of shipping given that a large number of fishing and tourist vessels operating in the Antarctic are registered to states outside of the ATS. These challenges can only be addressed through cooperation and coordination with the appropriate international institution such as the ISA or the IMO. Although in the past the ATCM has been reluctant to engage with external international bodies, this is beginning to change. In particular, the ATCM has engaged recently with the IMO in connection with the development of the Polar Code and the adoption of other rules of application to the Antarctic at the international level. As noted above, the CCAMLR MPA framework measure adopted in 2011 requires the Commission to coordinate with institutions such as the IMO where external institutional measures would support the aims and objectives of the MPA. One initiative that could be usefully pursued by the ATCM, CCAMLR and IMO is the designation of a Particularly Sensitive Sea Area in the Antarctic, within which the various requirements (mandatory and voluntary) already of application could be consolidated and, if deemed appropriate, enhanced.<sup>172</sup>

Finally, as noted in the section ‘The MPA as a Tool of Conservation’, the more general question of ocean governance in ABNJ including the creation of high seas MPAs is currently under consideration by the UNGA through the work of the newly mandated BBNJ Working

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<sup>169</sup> This is of particular relevance in the subantarctic where several states exercise jurisdiction over a continental shelf which extends beyond 200 nm.

<sup>170</sup> The Area (seabed beyond national jurisdiction) and its resources are designated as the common heritage of mankind under the LOS Convention (as modified by the Part XI Deep-Sea Mining Agreement (Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, of 28 July 1994 (1836 UNTS 42)), and are administered by the ISA. Although beyond the scope of this chapter, it should be noted that in 2011 the ISA adopted a decision endorsing the development of an environmental management plan for the Clarion-Clipperton Zone, including the designation of a network of representative protected areas within the zone (see doc. ISBA/17/C/19 adopted at the Seventeenth Session of the ISA’s Council, Kingston, Jamaica, 11-17 July 2011).

<sup>171</sup> The relationship between the Antarctic Treaty and the LOS Convention goes beyond the parameters of this chapter and is explored elsewhere in this volume.

<sup>172</sup> I have explored the idea of a Southern Ocean PSSA elsewhere (see K.N. Scott, note 14 at 32-40). See also J. Roberts, A. Chircop and S. Prior “Area-based Management on the High Seas: Possible Application of the IMO’s Particularly Sensitive Sea Area Concept” (2010) 25 *International Journal of Marine and Coastal Law* 483-522.

Group. The conclusions and recommendations of this Group in respect of high seas MPAs will inevitably impact and shape the development of MPAs at the regional level. Given that the institutions of the ATS, and in particular, CCAMLR, are undoubtedly at the forefront of developing practice in relation to high seas MPAs, it would be desirable for that experience within the Southern Ocean to be incorporated into the multilateral process.

#### CONCLUDING REMARKS

The level of protection in the Southern Ocean implemented through area-based management is among the best of any region and also compares favourably with the Arctic. In areas under the jurisdiction of states - primarily in the subantarctic - MPAs are extensive in terms of geographic scope and coverage of a diverse range of activities. Beyond national jurisdiction, the Madrid Protocol and the CAMLR Convention provide for a degree of protection significantly higher than that available in surrounding areas. Moreover, within their areas of application, MPAs can be designated for a range of purposes by the ATCM and CCAMLR and associated measures can prohibit or regulate more strictly activities such as fishing, scientific research and activities associated with shipping. Finally the ATS constitutes a unique institutional framework which facilitates and indeed requires relatively close cooperation between the organisations responsible for managing fisheries (CCAMLR) and other activities (the ATCM).

Nevertheless, MPA coverage within the Southern Ocean high seas is far from complete in terms of both geographic and activity coverage. This chapter has identified three potential reforms to the current regime that would further develop MPA designation within the Southern Ocean. First, the extension of the scope of the Madrid Protocol to the Antarctic Convergence, which would permit the designation of ASPAs and ASMAs within the entire CAMLR Convention area. Second, greater institutional cooperation between CCAMLR and the ATCM permitting the designation of joint MPAs within which a broad range of co-located activities including fishing, tourism and scientific research are managed. And finally, greater institutional cooperation between the ATCM and the IMO in order to better manage the impacts of shipping within the MPA, or, more particularly, the PSSA framework. The Special Meeting of CCAMLR due to be held in July 2013 to discuss the designation of MPAs within the CAMLR area will provide an opportunity to explore these and other issues. The three MPA proposals currently under consideration (relating to the Ross Sea, Eastern Antarctica and the Antarctic Peninsula) would, if adopted, constitute the most extensive and ecologically coherent network of high seas MPAs anywhere in the world. Of fundamental importance to ocean governance in the Southern Ocean region, this development would undoubtedly also have global significance and operate as a precedent for the designation of high seas MPAs more generally.