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BOOK CHAPTER

Chapter 25 Marine Protected Areas in Antarctic Waters: A Review of Policy Options in the Context of International Law

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Introduction¹

The Antarctic convergence (also referred to as the Antarctic polar front) is the natural boundary zone where Antarctic surface waters moving northward sink below sub-Antarctic waters.² The Antarctic convergence encloses a large marine ecosystem³ (Antarctic LME) that has several noteworthy characteristics. Species present in the ecosystem are highly adapted to extreme environmental conditions

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are many are unique to the region.⁴ Recent scientific studies have also identified that Antarctic waters contain the areas of the world's oceans that are least impacted by human activity.⁵

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² Keith Moore, Mark Abbott, and James Richman, "Location and Dynamics of the Antarctic Polar Front from Satellite Sea Surface Temperature Data," *Journal of Geophysical Research*, 104 (1999): 3,059.

³ Large marine ecosystems are areas of ocean that are characterised by distinct bathymetry, hydrography, productivity and trophic interaction. See, Lewis M Alexander, "Large Marine Ecosystems: A New Focus for Marine Resources Management," *Marine Policy*, 17 (1993):186; Kenneth Sherman and Gotthilf Hempel (eds.), *The UNEP Large Marine Ecosystem Report: A Perspective on Changing Conditions in LMEs of the World's Regional Seas* (Nairobi: UNEP, 2008); Timothy M Hennessey and Jon G Sutinen (eds.), *Sustaining Large Marine Ecosystems: The Human Dimension* (San Diego: Elsevier Science, 2005).

⁴ See, for example, Marie Christine Aquarone and Sara Adams, "Antarctic LME" in Sherman and Hempel (eds.), *The UNEP Large Marine Ecosystem Report*, 765.

⁵ See, for example, Benjamin S. Halpern, Shaun Walbridge, Kimberly A. Selkoe, *et al.*, "A Global Map of Human Impact on Marine Ecosystems," *Science*, 319 (2008): 948.

Despite the relatively low level of human activity throughout Antarctic waters, direct and indirect anthropogenic interactions with the Antarctic LME have placed the ecosystem under significant stress.⁶ A key ecosystem stressor is the commercial harvesting of krill, patagonian toothfish and antarctic toothfish. Other key stressors to the Antarctic LME include an increasing level of vessel traffic in Antarctic waters, in addition to climate change – which contributes to acidification of Antarctic waters and also to species displacement.

Increasing awareness of the value and vulnerability of the Antarctic LME has catalysed efforts by various stakeholders to establish marine protected areas (MPAs) in Antarctic waters. In recent years States Parties to the Antarctic Treaty System (ATS)⁷ have engaged in ongoing discussions concerning the potential for MPAs to enhance conservation and management of the Antarctic LME. Component bodies of the ATS – including the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and the Antarctic Treaty Consultative Meeting (ATCM) – have acknowledged the potential for a network of multiple MPAs to further the management objectives set out ATS instruments. These bodies have also achieved significant progress toward establishing an MPA network in Antarctic waters.

Taking into account recent developments within the ATCM and CCAMLR, the present chapter will review several policy options for establishing additional MPAs in Antarctic waters and identify how international legal frameworks both constrain and enable their implementation. The chapter will first focus on the concept of a ‘marine protected area’ and canvas a range of policy options for designating MPAs in Antarctic waters. Discussion then turns to the identification

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of specific legal provisions enabling the designation of MPAs in Antarctic waters and provides an overview of how these provisions have been utilised to date. Key functional and jurisdictional limitations of each provision that constrain the implementation of certain MPA policy options are also assessed. These limitations arise because waters south of the Antarctic convergence are managed in accordance with a variety of overlapping or conflicting legal frameworks that have developed in a fragmented manner in response to specific political pressures and functional management concerns. The chapter concludes by making recommendations to address the identified limitations of the international legal framework.

Policy Options for Designating MPAs in Antarctic Waters

The term “marine protected area” (MPA) has been used to refer to a wide variety of spatial management measures applied by national governments and international organisations.⁸ At an international level, the term is defined in several instruments and policy documents. Revised guidelines published in 2008 by the International Union for Conservation of Nature (IUCN Guidelines)⁹ establish a framework for classifying protected areas that has achieved

⁶ Richard B Aronson, Sven Thatje, James B. McClintock, *et al.*, “Anthropogenic impacts on marine ecosystems in Antarctica,” *Annals of the New York Academy of Sciences*, 1223 (2011): 82.

⁷ The ATS consists of the: *Antarctic Treaty*, opened for signature 1 December 1959, entered into force 23 June 1961, 402 UNTS 71; *Convention for the Conservation of Antarctic Seals*, opened for signature 1 June 1972, entered into force 11 March 1978, 1080 UNTS 175 (*CAS Convention*); *Convention for the Conservation of Antarctic Living Marine Resources*, opened for signature 20 May 1980, entered into force 7 April 1982, 1329 UNTS 47 (*CAMLR Convention*); *Protocol on Environmental Protection to the Antarctic Treaty*, opened for signature 4 October 1991, entered into force 14 January 1998, 30 (1991) ILM 1461 (*Madrid Protocol*).

⁸ See, Jon Day, “Marine Protected Areas,” in Michael Lockwood, Graeme Worboys, Ashish Kothari (eds.), *Managing Protected Areas: a global guide* (London: Earthscan, 2006).

⁹ Nigel Dudley (ed.), *Guidelines for Applying Protected Area Management Categories* (Gland: IUCN, 2008), <http://data.iucn.org/dbtw-wpd/edocs/PAPS-016.pdf> (IUCN Guidelines). See also, IUCN, *Guidelines for Protected Area Management Categories* (Gland: IUCN, 1994), <http://data.iucn.org/dbtw-wpd/edocs/1994-007-En.pdf>. Subsequent references to the IUCN Guidelines are to the 2008 edition.

widespread international recognition and implementation in national legislation.¹⁰ In these guidelines, a “protected area” is defined generally as:

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a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.¹¹

The emphasis placed in this definition on the objective of “long-term” or “lasting” conservation is absent from an alternative definition set out in the *Convention on Biological Diversity (CBD)*.¹² CBD Article 8(a) obliges each Contracting Party to establish, as far as possible and as appropriate, “a system of protected areas or areas where special measures need to be taken to conserve biological diversity.” The concept of a protected area is defined in CBD Article 2 to mean “a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.” This provision is complemented by the following definition of the term “marine and coastal protected area” that was developed by an Ad Hoc Technical Expert Group at the 7th Meeting of the Conference of the Parties (COP) to the CBD:

‘Marine and coastal protected area’ means any defined area within or adjacent to the marine environment, together with its overlying 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 that is surroundings.¹³

The broad definitions mentioned above are essentially umbrella references to a wide variety of measures that restrict human activity within a defined marine space. Accordingly, there are a wide variety of potential restrictive measures in Antarctic waters that could be uncontroversially characterised as some form of MPA. Temporary or transient restrictive measures would however be inconsistent with the objective of “long-term conservation” referred to in the IUCN Guidelines definition.¹⁴

Different policy options for designating MPAs in Antarctic waters can be distinguished from one another by reference to several key characteristics, including: the management objectives of the relevant MPA; the degree to which human activities are restricted within the protected area; the spatial configuration of the protected area; and the procedures and

¹⁰ For an example of implementation of the Protected Area Management Categories in national legislation, see *Environment Protection and Biodiversity Conservation Act, 1999* (Cth, Australia), which empowers the Governor General to designate a Commonwealth Reserve, which must be assigned to, and have characteristics consistent with, a particular IUCN Protected Area Management Category (see sections 343-348). The IUCN Protected Area Management Categories are used to populate the UN List of Protected Areas (http://www.unep-wcmc.org/un-list-of-protected-areas_269.html) and the World Database on Protected Areas maintained by the United Nations Environment Program World Conservation and Monitoring Centre (in collaboration with the IUCN). They have also been recognised and utilised under the framework of the *Convention on Biological Diversity*: See, for example, COP 7 Decision VII/28, <http://www.cbd.int/decision/cop/?id=7765>.

¹¹ IUCN Guidelines, 8-10. Note that this definition applies in both marine and terrestrial contexts, and replaces a previous IUCN definition of ‘marine protected area’ published in 1999: Dudley, *Protected Area Management Categories*, 56.

¹² *Convention on Biological Diversity*, opened for signature 5 June 1992, entered into force 29 December 1993, 1760 UNTS 79.

¹³ See, CBD COP 7, Decision VII/5, <http://www.cbd.int/decision/cop/?id=7742>, which also contains a detailed definition of the “marine environment.”

¹⁴ For discussion of other restrictive measures deemed by the IUCN to be inconsistent with its MPA definition, see IUCN Guidelines 2008, 7-12.

selection criteria informing the designation of an MPA in a particular location. The IUCN Guidelines identify six categories of protected areas, which are distinguished from one another by reference

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to area management objectives and the degree to which human activities are restricted. The categories were originally and primarily developed for use in a terrestrial context.¹⁵ Their potential application to Antarctic waters can be summarised as follows:

Category Ia – Strict nature reserve

MPAs falling under this category are “strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.”¹⁶ An important potential function of such areas is to serve as reference areas for scientific research and monitoring.¹⁷ A Strict nature reserve in Antarctic waters would prevent, other than for strictly limited scientific purposes, any removal of marine species or other exploitation of marine resources.¹⁸ It would also be highly restrictive of all aspects of human activity within the area covered by the MPA.¹⁹

Category Ib – Wilderness area

MPAs falling under this category are “usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.”²⁰ A Wilderness area in Antarctic waters would prevent the removal of marine species or other exploitation of marine resources, other than for limited scientific purposes.²¹ However in contrast to Category Ia Strict nature reserves, such areas would be permissive of limited self-supported low-impact tourism and other human visitation.²² This might include tourist visitation in small vessels that operate from larger cruise ships that do not enter the relevant MPA. Human interactions with the marine environment would still be controlled, absent the strict prohibitions present in Category Ia reserves.²³

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Category II – National park

MPAs falling under this category are “large natural or near natural areas set aside to protected large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmental and culturally compatible spiritual, scientific, educations, recreational and visitor opportunities.”²⁴ A National park in Antarctic waters would prevent the removal of marine species or other exploitation of marine resources, other than for scientific purposes.²⁵ A key characteristic distinguishing National parks from Category 1b Wilderness areas is that the former allows for

¹⁵ The IUCN has published guidelines for applying its protected area management categories to MPAs (IUCN MPA Guidelines). See, https://cmsdata.iucn.org/downloads/iucn_categoriesmpa_eng.pdf.

¹⁶ IUCN Guidelines, 13.

¹⁷ Ibid.

¹⁸ IUCN MPA Guidelines, 19-20.

¹⁹ IUCN Guidelines, 13-14.

²⁰ Ibid.

²¹ IUCN MPA Guidelines, 19. They would however be permissive of sustainable resource use by indigenous inhabitants, although this characteristic is obviously not relevant to Antarctic waters: *ibid.*

²² IUCN Guidelines, 14-15; IUCN MPA Guidelines, 20-21.

²³ IUCN Guidelines, 14-15.

²⁴ *Ibid.*, 16-17.

²⁵ *Ibid.*; IUCN MPA Guidelines, 21-21.

higher levels of human visitation than the latter and permits the establishment of associated supportive infrastructure.²⁶ In an Antarctic waters context, the operation of large cruise ships and other similarly sized vessels would appear to be more consistent with the objectives of Category II National parks than the other formerly mentioned categories.

Category III – Natural Monument or Feature

MPAs falling under this category are managed in a similar fashion to Category II National parks. However, rather than establishing restrictive measures on a large spatial scale they are “set aside to protect a specific natural monument” such as seamounts, submarine caverns, or other geological or living marine features.²⁷ In an Antarctic waters context Category III MPAs could provide localised protection to biodiversity aggregation sites that have important conservation value, key aggregation sites for certain iconic species, or other marine features deemed to possess cultural or recreational value.²⁸

Category IV – Habitat/species management area

MPAs falling under this category “aim to protect particular species or habitats.”²⁹ They are managed in accordance with this priority and are not necessarily intended to enclose a self-sustaining ecosystem.³⁰ Within Category IV MPAs human interventions to ensure the survival of specific habitats or species may be permitted. Activities that do not impact upon a particular species or habitat may not be restricted.³¹ A Category IV MPA in Antarctic waters would permit a range

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of human activity, including commercial fishing, to take place in accordance with specific restrictions, which might include: prohibited extractive use of particular marine species; prohibited waste discharge from vessels, or seasonal restrictions and defined intensities for marine living resources (MLR) exploitation.

Category V – Protected seascape³²

MPAs falling under this category consist of a “protected area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.” In contrast to Category IV MPAs, the principal aim of Category V MPAs is protect an overall seascape as opposed to specific habitats or species. The emphasis placed on a long-term “interaction of people and nature over time” assumes some degree of proximate human habitation.³³ Given the absence of such habitation in Antarctic waters (apart from temporarily resident scientific personnel), the scope for application of a Category V MPAs in Antarctic waters would appear to be limited.

Category VI – Protected area with sustainable use of natural resources

MPAs falling under this category “conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems.”³⁴ In

²⁶ IUCN MPA Guidelines, 20-21.

²⁷ IUCN Guidelines, 17-19.

²⁸ IUCN MPA Guidelines, 21.

²⁹ IUCN Guidelines, 21-22.

³⁰ Ibid; IUCN MPA Guidelines, 21-22.

³¹ IUCN MPA Guidelines, 21-22.

³² In a terrestrial context, a Category V protected area is referred to as a ‘Protected Landscape’: IUCN Guidelines, 20.

³³ The IUCN MPA Guidelines, 22, note that Category V MPAs ‘might most typically be expected to occur in coastal areas’ and generally involve ‘living within and sustainably using the seascape.’

³⁴ IUCN Guidelines, 22.

contrast to the previously mentioned categories, the primary objective of Category VI MPAs incorporates both the protection of natural ecosystems and the sustainable use of natural resources, to the extent that these activities are mutually beneficial.³⁵ The emphasis placed on “traditional” natural resource management is problematic in an Antarctic waters context given the absence of proximate human habitation and associated localised small-scale use of marine resources. For example, fishing activities in Antarctic waters are undertaken using industrial-scale vessels that are equipped to navigate very large distances from their home ports. Antarctic MPAs in which sustainable resource use was permitted would be more appropriately categorised under Category IV.

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Spatial configuration

In addition to the widely recognised IUCN Categories discussed above, MPA policy options for Antarctic waters can be distinguished from each other by reference to their vertical and horizontal limits within a three-dimensional marine environment. The vertical limits of an MPA may be designed to provide protection for the seabed, the superjacent water column, or both.³⁶ MPAs may also contain one or more sub-zones in which contrasting restrictive measures are applied.³⁷ Many MPAs around the world contain subzones defined by horizontal limits. For example, the Australian Government has established the Macquarie Island Commonwealth Marine Reserve, which is a large MPA consisting of three subzones:³⁸ Within a Northern and Southern “Species/Habitat Protection Zone” restrictive measures correspond to IUCN Category IV. Within a central “Highly Protected Zone”, restrictive measures correspond to IUCN Category Ia. Several MPAs also contain subzones defined by vertical limits. For example, the Australian Government has established the Huon Commonwealth Marine Reserve which consists of a large IUCN Category VI “Multiple Use Zone” and a small IUCN Category Ia “Benthic Sanctuary.”³⁹ The Benthic Sanctuary is designed to protect several seamounts and prohibits the deployment of certain fishing methods below a depth of 500 metres below sea level.⁴⁰

Procedures and selection criteria for designation

MPA policy options can also be distinguished from each other by reference to the procedures and selection criteria that are used to inform the designation of MPAs in particular location(s).⁴¹ MPA sites can be selected on an *ad hoc* basis in response to specific environmental or management concerns, or in accordance with an overarching management framework applied to particular marine locations, environments or ecosystems. Management frameworks may provide for the selection of multiple MPA sites in order to establish a network of

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³⁵ IUCN MPA Guidelines, 23.

³⁶ See, IUCN Guidelines, 56 and IUCN MPA Guidelines, 30.

³⁷ See, IUCN Guidelines, 56-57 and IUCN MPA Guidelines, 24-26.

³⁸ See, <http://www.environment.gov.au/coasts/mpa/southeast/macquarie/management.html>. See also, Australian Government, “Macquarie Island Marine Park Management Plan 2001-2008”, <http://www.environment.gov.au/coasts/mpa/publications/pubs/macquarie-plan.pdf>.

³⁹ See, <http://www.environment.gov.au/coasts/mpa/southeast/huon/index.html>.

⁴⁰ See, <http://www.environment.gov.au/coasts/mpa/southeast/huon/management.html>.

⁴¹ For discussion focusing on several different selection criteria see Peter Jones, “Marine protected area strategies: issues, divergences and the search for middle ground,” *Reviews in Fish Biology and Fisheries*, 11 (2002): 197.

MPAs designed to meet overarching policy objectives.⁴² There are a large number of inter-governmental policy documents that set out detailed procedures and selection criteria for the designation of MPAs or component parts of an MPA network. For example: CBD COP 9 Decision IX/20⁴³ contains criteria and guidance “for identifying ecologically or biologically significant marine areas in need of protection in open ocean waters and deep-sea habitats.”⁴⁴ The CBD Secretariat has also published technical advice “on the establishment and management of a national system of marine and coastal protected areas.”⁴⁵ The following three criteria are commonly cited as necessary conditions for selecting components of an MPA network:⁴⁶

1. Comprehensiveness – Do components of the MPA network collectively include the full range of ecosystems present in the relevant bioregion?
2. Adequacy – Are components of the MPA network large enough to maintain the ecological viability and integrity of populations, species and communities in the relevant bioregion?
3. Representativeness – Is the number of MPAs sufficient to reflect the biotic diversity of marine ecosystems in the relevant bioregion?

Legal Provisions for Establishing MPAs in Antarctic Waters

Waters located south of the Antarctic convergence are managed in accordance with a variety of international legal instruments that have developed in a fragmented manner in response to specific political pressures and functional management concerns. Several of these instruments contain provisions enabling the designation in Antarctic waters of different types of MPAs. The relevant provisions are: *United Nations Convention on the Law of the Sea*, Parts II, V and VI (LOSC);⁴⁷ *CAMLR Convention*, Article IX; *Madrid Protocol*, Annex V, Articles 3

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and 4; *International Convention for the Regulation of Whaling*, Articles IV and V (ICRW);⁴⁸ *International Convention for the Prevention of Pollution from Ships*, Annexes I, II and V (MARPOL);⁴⁹ and *International Convention for the Safety of Life at Sea*, Chapter V

⁴² A key policy objective of an MPA network is to establish ecologically coherent protective measures that take into account factors such as the location of specific species, seasonal migratory patterns, and more generally the need to protect geographically disparate, but ecologically connected habitats and ecosystems. For further discussion see Day, “Marine Protected Areas”.

⁴³ See, <http://www.cbd.int/decision/cop/?id=11663>.

⁴⁴ Note also COP 10 Decision X/31, <http://www.cbd.int/decision/cop/?id=12297>; and COP 7 Decision VII/5, <http://www.cbd.int/decision/cop/?id=7742>.

⁴⁵ *CBD Technical Series No. 13* (2004), <http://www.cbd.int/doc/publications/cbd-ts-13.pdf>.

⁴⁶ CCAMLR, “Report of the CCAMLR Workshop on Marine Protected Areas, Silver Spring, USA 29 August – 1 September 2005”, http://www.ccamlr.org/pu/e/e_pubs/sr/05/a7.pdf. See also, Department of Conservation and Ministry of Fisheries (New Zealand), *Marine Protected Areas, Policy and Implementation Plan* (2005), <http://www.biodiversity.govt.nz/pdfs/seas/MPA-Policy-and-Implementation-Plan.pdf>; CBD COP 7 Decision VII/5, <http://www.cbd.int/decision/cop/?id=7742>; Natural Resource Management Ministerial Council (Australia), *Australia's Biodiversity Conservation Strategy 2010-2030* (2010), <http://www.environment.gov.au/biodiversity/publications/strategy-2010-30/pubs/biodiversity-strategy-2010.pdf>.

⁴⁷ *United Nations Convention on the Law of the Sea (LOSC)*, opened for signature 10 December 1982, entered into force 16 November 1994, 1833 UNTS 397.

⁴⁸ *International Convention for the Regulation of Whaling (ICRW)*, opened for signature 2 December 1946, entered into force 10 November 1948, 161 UNTS 72.

⁴⁹ *International Convention for the Prevention of Pollution from Ships (MARPOL)*, opened for signature 2 November 1973 (not yet in force), 12 (1973) ILM 1319, as amended by *Protocol Relating to the Convention for the Prevention of Pollution from Ships*, opened for signature 17 February 1978, entered into force 2 October 1983, 17 (1978) ILM 246, reprinted in International Maritime Organization, *MARPOL 73/78 Consolidated Edition* (London: IMO, 2006).

(SOLAS).⁵⁰ The following paragraphs provide an overview of these provisions and how they have been utilised to date to establish MPAs in Antarctic waters. They also identify key functional and jurisdictional limitations of each provision that constrain the implementation of certain MPA policy options.

Parts II, V and VI of the LOSC

The *LOSC* establishes, *inter alia*, basic rules concerning the exercise of flag and coastal State jurisdiction at sea. It recognises the entitlement of coastal States to claim maritime zones of national jurisdiction appurtenant to territories over which they have sovereignty. The nature and scope of national jurisdiction recognised by the *LOSC* is discussed extensively in other literature and will not be addressed in detail here.⁵¹ For the present purposes it is relevant to note the following: *LOSC* Part II recognises the sovereignty of a coastal State over a territorial sea extending up to 12 nautical miles from baselines designated in accordance with the Convention.⁵² Further seaward, *LOSC* Part V recognises sovereign rights over an exclusive economic zone (EEZ) extending up to 200 nautical miles from territorial sea baselines designated by the relevant coastal State.⁵³ Sovereign rights are also conferred in relation to natural resources of the continental shelf,⁵⁴

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which may extend 200 nautical miles or further from territorial sea baselines in accordance with detailed requirements set out in *LOSC* Part VI and Annex II.⁵⁵

Subject to the various detailed requirements set out in *LOSC* Parts II, V and VI, a coastal State is entitled to establish MPAs within its territorial sea, EEZ or continental shelf and enforce restrictive measures within such areas against foreign vessels and nationals. Coastal State jurisdiction to establish and enforce MPAs is limited, *inter alia*, by various navigational freedoms afforded to foreign vessels that constrain, to an uncertain extent, the implementation of certain MPA policy options.⁵⁶ Two key relevant navigational freedoms afforded to foreign vessels are the right of innocent passage within the territorial sea;⁵⁷ and the broad freedom of navigation afforded to vessels in the EEZ.⁵⁸ In practice, these navigational freedoms act as a disincentive for coastal States to establish highly restrictive MPAs (for example, measures consistent with IUCN Categories Ia and Ib), although the basic position set out in the *LOSC* has been progressively modified by various supplemental international agreements that provide greater scope for regulating the navigation of foreign vessels within certain types of MPA (see below).⁵⁹ Given the broad freedoms attributed to

⁵⁰ *International Convention for the Safety of Life at Sea (SOLAS)*, opened for signature 1 November 1974, entered into force 25 May 1980, 1184 UNTS 2. For further information see the IMO website, <http://www.imo.org/About/Conventions/ListOfConventions/Pages/Default.aspx>.

⁵¹ See generally, Robin Churchill and Vaughan Lowe, *The Law of the Sea, 3rd edition* (Manchester: Manchester University Press, 1999) and Donald Rothwell and Tim Stephens, *The International Law of the Sea* (Oxford: Hart, 2010).

⁵² See, *LOSC*, Part II, particularly *LOSC*, Articles 27 and 28 regarding jurisdiction in relation to foreign ships in the territorial sea. For discussion of the Convention's rules concerning baselines, see Rothwell and Stephens, *International Law of the Sea*, 33-57.

⁵³ See, *LOSC*, Part V, particularly Articles 55-57 and Article 73.

⁵⁴ See, *LOSC*, Part VI, particularly Article 77. See also, Churchill and Lowe, *Law of the Sea*, 151-157.

⁵⁵ See in particular, *LOSC*, Article 76. See also, Churchill and Lowe, *Law of the Sea*, 145-150.

⁵⁶ For further discussion see, Fabio Spadi, "Navigation in Marine Protected Areas: National and International Law," *Ocean Development and International Law*, 31 (2000): 285.

⁵⁷ *LOSC*, Article 17, for further information see Rothwell and Stephens, *International Law of the Sea*, 215-218.

⁵⁸ See generally *ibid.* 224-229. Note also the right of transit passage through straits used for international navigation (see *LOSC*, Part III).

⁵⁹ Supplemental agreements applicable to an Antarctic context are discussed in further detail below. Note also that several coastal States deploy ship routing measures as a means to prevent vessel traffic located within their maritime zones. See, Fabio Spadi, "Navigation in Marine Protected Areas".

vessels navigating on the high seas,⁶⁰ the establishment of high seas MPAs relies on the presence of an international agreement to exercise flag State jurisdiction in a certain manner.⁶¹

Several States assert claims to zones of coastal State jurisdiction in Antarctic waters and have established MPAs within these zones in accordance with their respective national laws.⁶² Antarctic waters located north of 60°S Latitude contain high seas areas, in addition to territorial sea, EEZ and continental shelf claims that are not protested by third States. The aforementioned claims are projected from various Sub-Antarctic islands⁶³ and contain several large, nationally-designated MPAs.⁶⁴

Antarctic waters located south of 60°S Latitude

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(that is, waters within the spatial jurisdiction of the *Antarctic Treaty*) consist of high seas areas, in addition to areas in which the following claims have been asserted by States claiming territorial sovereignty over parts of the Antarctic continent and adjacent islands.⁶⁵ Argentina, Australia, Chile, and France have claimed both a territorial sea and an EEZ/fisheries zone adjacent to their respective territorial claims.⁶⁶ New Zealand, Norway, and the United Kingdom have declared a territorial sea but not an EEZ/fisheries zone adjacent to their respective territorial claims.⁶⁷

The maritime claims (and associated MPA designations) to waters located south of 60°S Latitude have a tenuous position in international law, for two principal reasons: First, the Antarctic territorial claims on which they depend are not recognised widely and have been actively protected by several States with an active presence in the region. The United States, for example, has refused to recognise any claims at all to the Antarctic continent.⁶⁸

⁶⁰ See *LOSC*, Part VII.

⁶¹ For further discussion see Tullio Scovazzi, "Marine Protected Areas on the High Seas: Some Legal and Policy Considerations," *The International Journal of Marine and Coastal Law*, 19 (2004): 1; CBD Secretariat, "The international legal regime of the high seas and the seabed beyond the limits of national jurisdiction and options for cooperation for the establishment of marine protected areas in marine areas beyond the limits of national jurisdiction," *CBD Technical Series No. 19* (November 2005), <http://www.cbd.int/doc/publications/cbd-ts-19.pdf>; and Robin Warner, *Protecting the Oceans Beyond National Jurisdiction: Strengthening the International Law Framework* (Leiden: Martinus Nijhoff, 2009).

⁶² Relevant MPAs include: the Southern Ocean Whale Sanctuary, and Heard Island and McDonald Islands Marine Reserve proclaimed by the Australian Government in accordance with the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth); and the Prince Edward Islands Macquarie Island Commonwealth Marine Reserve designated by the Government of South Africa.

⁶³ For a list of the relevant islands and corresponding claimants see Rose and Milligan, "Law for the Management of Antarctic Marine Living Resources".

⁶⁴ See, Susie Grant and Phil Trathan, "Marine Protected Areas in the Southern Ocean: update on current status of designated areas," paper presented at the CCAMLR MPA Workshop, Brest, France, 29 August to 2 September, 2011.

⁶⁵ For detailed information regarding relevant territorial claims see, Donald Rothwell, *The Polar Regions and the Development of International Law* (Cambridge: University of Cambridge Press, 1996), 54-8; and, Christopher Joyner, "Antarctica and the Law of the Sea: Rethinking the Current Legal Dilemmas," *San Diego Law Review*, 18 (1980-1): 415. A significant portion of the Antarctic continent – between longitudes 90°W and 150°W – remains unclaimed.

⁶⁶ See, Rose and Milligan, "Law for the Management of Antarctic Marine Living Resources".

⁶⁷ For further discussion see *ibid.* Note also that several States have presented submissions to the Commission on the Limits of the Continental Shelf that incorporate claims to an extended continental shelf entitlement appertaining to the Antarctic continent. See, United Nations, Division for Ocean Affairs and the Law of the Sea, *Submissions to the Commission on the Limits of the Continental Shelf* (30 October 2009), http://www.un.org/Depts/los/clcs_new/commission_submissions.htm.

⁶⁸ *Digest of United States Practice in International Law*, 107-11 (1975). Some States advocate that the Antarctic continent and surrounding waters should be regarded as common heritage of mankind: Moritaka Hayashi, 'The Antarctic Question in the United Nations,' *Cornell International Law Journal*, 19 (1986): 275.

Secondly, the assertion of coastal State jurisdiction against foreign nationals in these waters potentially

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conflicts with the respective claimant States' obligations under the *Antarctic Treaty*. The *Antarctic Treaty* entered into force in 1961 and its parties include all States claiming sovereignty over territories on the Antarctic continent.⁶⁹ Article VI of the treaty defines its area of application as follows:

The provisions of the present Treaty shall apply to the area south of 60° South Latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

Within this area, Article IV of the *Antarctic Treaty* simultaneously prohibits the expansion of territorial claims but stipulates that its provisions are to be interpreted without prejudice to existing territorial claims. Apart from an ambiguous reference to "the high seas within" its area of application,⁷⁰ the *Antarctic Treaty* does not contain provisions relating to the assertion of national jurisdiction in Antarctic waters on the basis of territorial claims to the Antarctic continent.⁷¹ Conversely, the *LOSC* does not refer to the *Antarctic Treaty*. However Article 311(2) of the *LOSC* does preserve rights and obligations in other agreements provided they are compatible with the convention and "do not affect the enjoyment by other States Parties of their rights or the performance of their obligations" under the *LOSC*. There has been considerable academic debate concerning whether a State claiming Antarctic territory is entitled to regard itself as a coastal State under the *LOSC* and assert maritime claims within the Treaty's area of application.⁷² In practice the position is clearer – States claiming maritime zones within the Treaty's area of application have sought to reconcile their implementation of parallel rights and obligations under the *ATS* and the *LOSC* by refraining from taking steps to enforce or consolidate their claims to maritime zones against third States.⁷³ National laws (including laws concerning MPAs) that apply within the *Antarctic*

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Treaty's area of application generally defer in express terms to international law or specifically exclude jurisdiction over foreign nationals in order to minimise the potential to provoke a dispute concerning the Treaty's interpretation and application.⁷⁴ Accordingly,

⁶⁹ As of 28 February 2012, 49 countries are party to the Antarctic Treaty. See the Secretariat website at http://www.ats.aq/devAS/ats_parties.aspx?lang=e.

⁷⁰ It is unclear whether Article VI of the *Antarctic Treaty* (1) recognises the high seas character of waters located within the Treaty's area of application, or (2) simply protects high seas rights and freedoms within waters that, for reasons independent to the Treaty, happen to be high seas.

⁷¹ For further discussion see Christopher Joyner, "The Antarctic Treaty System and the Law of the Sea: Competing Regimes in the Southern Ocean?" *The International Journal of Marine and Coastal Law*, 10 (1995): 301; and, Ruth Davis, "Enforcing Australian Law in Antarctica: The HSI Litigation," *Melbourne Journal of International Law*, 8 (2007): 301.

⁷² See, for example, Joyner, "Antarctic Treaty System and Law of the Sea"; Bernard Oxman, "Antarctica and the New Law of the Sea," *Cornell Journal of International Law*, 19 (1986): 211; and, M. J. Peterson, "Antarctic Implications of the New Law of the Sea," *Ocean Development and International Law*, 16 (1986): 137.

⁷³ For example, each of these States has requested that the UN Commission on the Limits of the Continental Shelf not consider their claims to an extended continental shelf projected from the Antarctic continent.

⁷⁴ See, for example, Law no. 24,922 of 12 January 1998, Chapter II, Article 4 (Argentina); Ley General de Pesca y Acuicultura 1991, Article 1 (Chile); *Antarctic Act* 1994 (United Kingdom) Part III; and the *Fisheries Management Act* 1991 (Cth, Australia), section 8. In relation to Australian legislation, see also Warwick Gullett and Clive Schofield, "Pushing the Limits of the Law of the Sea Convention: Australian and French Cooperative

waters located south of 60°S Latitude have an effective high seas character and the implementation of MPAs that apply more broadly to nationals of more than one State can, at present, only be achieved through use of the international legal provisions discussed below.

CAMLR Convention Article IX

The *CAMLR Convention* establishes a framework concerning the cooperative management of MLR in Antarctic waters.⁷⁵ In contrast to the *Antarctic Treaty*, the Convention's area of application extends beyond 60°S Latitude to a line approximating the Antarctic convergence.⁷⁶ Consequently, the spatial jurisdiction of the *CAMLR Convention* overlaps with the previously mentioned national maritime zones located north of 60°S Latitude. This spatial overlap is managed in accordance with a chairman's statement that was negotiated contemporaneously with the Convention.⁷⁷ The statement places the application of the Convention within those undisputed zones at the discretion of the relevant claimant coastal States, who in practice have continued to apply national measures that are generally consistent with the Convention.⁷⁸

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CAMLR Convention Article II(1) provides that "the objective of this Convention is the conservation of Antarctic marine living resources." The concept of "conservation" is expressly defined to include "rational use" of such resources.⁷⁹ The Convention also requires any harvesting of marine living resources and associated activities in the convention area to be conducted in accordance with the three conservation principles, namely: (1) the maintenance of harvested populations at levels that ensure their stable recruitment, (2) the maintenance of ecological relationships, and (3) the prevention of changes in the marine ecosystems that are not potentially reversible in two or three decades.⁸⁰

To give effect to the overarching objective and conservation principles mentioned above, the Convention establishes a Commission of the Parties that is empowered, inter alia, to establish binding measures regarding the conservation and management of MLR including measures permitting the harvesting of particular species.⁸¹ In exercising its functions, the Commission is required to take full account of recommendations and advice of a Scientific Committee of Commission Members.⁸²

Surveillance and Enforcement in the Southern Ocean," *The International Journal of Marine and Coastal Law*, 22 (2007): 545. A notable exception to this deference to international instruments is found in the 1999 *Australian Environment Protection and Biodiversity Conservation Act (EPBC Act)*, which establishes a whale sanctuary within the entire Australian EEZ (including the EEZ projected from the claimed Australian Antarctic territory) where killing or injuring whales is prohibited and attracts criminal penalties (EPBC Act section 229). The prohibition applies to foreign persons and vessels and does not require consistency with international law. The Australian Government has however refrained from taking action to enforce the prohibition against foreign vessels, including Japanese whaling fleets that have operated in Antarctic waters forming part of the claimed Australian EEZ.

⁷⁵ See, *CAMLR Convention*, Articles I(1)-(3).

⁷⁶ The coordinates of this line are defined in Article I(4) of the *CAMLR Convention*.

⁷⁷ Statement made by the chairman on 19 May 1980, appended to the Final Act of the CAMLR Conference, http://www.ccamlr.org/pu/e/e_pubs/bd/toc.htm.

⁷⁸ Dean Bialek, "Sink or Swim: Measures under International Law for the Conservation of the Patagonian Toothfish in the Southern Ocean," *Ocean Development and International Law*, 34 (2003):105, 107-8; Erik Jaap Molenaar, "CCAMLR and Southern Ocean Fisheries," *The International Journal of Marine and Coastal Law*, 16 (2001): 465, 477-82.

⁷⁹ *CAMLR Convention*, Article II(2).

⁸⁰ *Ibid.*, Article II(3).

⁸¹ *Ibid.*, Article VII. Decisions of the Commission on matters of substance are taken by consensus (Article XII) and are subject to 'opt-out' procedures (Article IV(6)).

⁸² *Ibid.*, Article IX(4). The composition and functions of the Scientific Committee are set out in Articles XIV-XVI.

Article IX of the Convention specifically empowers the Commission, *inter alia*, to formulate, adopt and revise conservation measures concerning: “the designation of the opening and closing of areas, regions or sub-regions for purposes of scientific study or conservation, including special areas for protection and scientific study...”,⁸³ in addition to “the designation of open and closed seasons for harvesting...”.⁸⁴ These broadly-worded provisions are flexible mechanisms for designating MPAs that are consistent with the broad objective and conservation principles of the *CAMLR Convention*. To date, they have been utilised as outlined below.

In 2005, with the express endorsement of the Commission, the CCAMLR Scientific Committee commenced a detailed program of preparatory work to identify areas suitable for MPA designation.⁸⁵ A key feature of this program is an attempt to develop a detailed bio-regionalisation of Antarctic waters. Taking note of the IUCN Categories outlined above, the Scientific Committee has advised the Commission that the “whole Convention Area is equivalent to an IUCN Category IV MPA, but there are areas within the Convention Area that require further special

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consideration in a representative system of MPAs.”⁸⁶ In 2009 at the 28th meeting of the Commission, agreement was reached to establish an MPA covering a large pelagic large area adjacent to the South Orkney Islands.⁸⁷ Within this area all types of fishing activities apart from certain scientific research are prohibited.⁸⁸ Prohibitions also apply to transshipment activities and the discharge or dumping of waste by fishing vessels.⁸⁹ In 2011 at the 30th meeting of the Commission, agreement was reached to establish a framework conservation measure concerning the establishment of additional “CCAMLR Marine Protected Areas.”⁹⁰ The framework conservation measure contains ten operative paragraphs of the measure specify the objectives of CCAMLR MPAs⁹¹ in addition to detailed procedures concerning the establishment, monitoring, management and review of such areas.⁹² MPAs designated pursuant to the framework conservation measure apply to vessels “under the jurisdiction of” CAMLR Convention Parties that are either fishing vessels, or vessels conducting scientific research activities in accordance with CCAMLR conservation

⁸³ Ibid., Article IX(2)(g).

⁸⁴ Ibid., Article IX(2)(f).

⁸⁵ CCAMLR, Report of the Twenty-Seventh Meeting of the Commission, paragraphs 7.2-7.3, http://www.ccamlr.org/pu/e/e_pubs/cr/drt.htm.

⁸⁶ The quote is taken from preamble of CCAMLR Conservation Measure 91-04 (2011).

⁸⁷ CCAMLR Conservation Measure 91-03 (2009).

⁸⁸ Ibid., paragraph 2.

⁸⁹ Ibid., paragraphs 3 and 4.

⁹⁰ CCAMLR Conservation Measure 91-04 (2011). The negotiation of this measure did not proceed smoothly and several CAMLR Convention Parties – primarily those with active fishing interests in Antarctic waters – were initially opposed to establishment of additional MPAs by the Commission. Extensive scientific work generated momentum for MPA proposals and helped to allay concerns that MPAs would be excessively prohibitive of the continued harvesting of Antarctic marine living resources. The conclusion of a framework conservation measures, as opposed to the concrete designation of additional MPAs, also postponed difficult debates concerning the establishment of MPAs in active fishing areas.

⁹¹ Relevant objectives include: the protection of representative examples of marine ecosystems, biodiversity and habitats at an appropriate scale to maintain their viability and integrity in the long term; the protection of key ecosystem processes, habitats and species, including populations and life-history stages; the establishment of scientific reference areas; the protection of areas vulnerable to impact by human activities; the protection of features critical to the function of local ecosystems; and the protection of areas to maintain resilience or the ability to adapt to effects of climate change. See, CCAMLR Conservation Measure 91-04 (2011), paragraph 2.

⁹² CCAMLR Conservation Measure 91-04 (2011), paragraphs 3-5, 8.

measures.⁹³ They do not apply to certain vessels operated by a State for non-commercial purposes, including naval vessels.⁹⁴

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The measures discussed above, and any future MPA designations undertaken in accordance with the framework conservation measure and Article IX of *CAMLR Convention*, have three key functional limitations that constrain the implementation of highly restrictive MPA policy options (for example, measures consistent with IUCN Categories Ia and Ib). The first is that they do not provide a basis for restricting human activity unrelated to MLR management, including the increasing number of tourist vessels operating in Antarctic waters. The subject matter jurisdiction of the *CAMLR Convention* is confined by Article I(1), which provides inter alia that the Convention “applies to Antarctic marine living resources” within its spatial area of application. The second functional limitation is that they do not provide a basis for restricting human activity concerning certain marine mammals. The subject matter jurisdiction of the *CAMLR Convention* is specifically limited in this context by Article VI, which provides that nothing in the Convention derogates from the rights and obligations of Parties to the *ICRW* (concerning the management of whales) and the *Convention for the Conservation of Antarctic Seals (CAS Convention)*.⁹⁵

The third functional limitation arises from the voluntary nature of participation in the *CAMLR Convention*: Unless they have agreed otherwise, States who are non-parties to the Convention are of course under no obligation to abide by conservation measures established by the Commission, including those concerning MPAs.⁹⁶ Vessels flagged to several States falling under this category have harvested Antarctic MLR at unsustainable levels,⁹⁷ and the Commission has adopted several measures designed to encourage accession to the *CAMLR Convention* and compliance with the Commission’s conservation and management measures.⁹⁸

For non-parties to the *CAMLR Convention* who are States Parties to the *The Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement)*,⁹⁹ the entitlement to contravene CCAMLR conservation measures is

⁹³ Ibid., paragraph 6. A footnote to this provision broadly defines the term “fishing vessel” to include: “any vessel of any size used for, equipped to be used for, or intended for use for fishing or fishing-related activities, including support ships, fish processing vessels, vessels engage in transshipment and carrier vessels equipped for the transportation of fishery products except container vessels and excluding Member’s marine science research vessels.”

⁹⁴ Ibid., paragraph 7. Note however that paragraph 7 exhorts CAMLR Convention Parties to adopt measures to ensure that such vessels “act in a manner consistent, so far as is reasonable and practicable, with this conservation measure.”

⁹⁵ *Convention for the Conservation of Antarctic Seals*, opened for signature 1 June 1972, entered into force 11 March 1978, 11 (1972) ILM 251 (*CAS Convention*). As noted previously, the latter instrument concerns the management of seals in Antarctic waters and, apart from enabling limited scientific activity, is not actively applied at present.

⁹⁶ For relevant basic principles of international law in this context, see Articles 18 and 26 of the *Vienna Convention on the Law of Treaties* (opened for signature 23 May 1969, entered into force on 27 January 1980, 1155 UNTS 331).

⁹⁷ See, David Agnew, “The Illegal and Unregulated Fishery for Toothfish in the Southern Ocean and the CCAMLR Catch Documentation Scheme,” *Marine Policy*, 24 (2000): 361.

⁹⁸ See, for example, “Policy to Enhance Cooperation between CCAMLR and Non-Contracting Parties” (as adopted at CCAMLR-XVIII and amended at CCAMLR-XXV), http://www.ccamlr.org/pu/e/e_pubs/cm/07-08/coop.pdf.

⁹⁹ *The Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 (UN Fish Stocks Agreement)* opened for signature 4 August 1995, entered into force 11 December 2001, 2167 UNTS. 3. At present more than 40 States Parties to the *UN Fish Stocks*

somewhat constrained. The *UN Fish Stocks Agreement* establishes a framework of fisheries management in areas beyond national jurisdiction (that is, the high seas) for the management of fish stocks that straddle the EEZ and high seas, and for highly migratory fish stocks that migrate through several EEZs and high seas areas.¹⁰⁰ It establishes an obligation to cooperatively manage fish stocks through the establishment of “subregional or regional fisheries management organisations or arrangements” and conditions the rights to fish on the high seas in cooperation with these organisations or arrangements.¹⁰¹

The extent to which this obligation mandates cooperation with CCAMLR conservation and management measures is not entirely clear. The relationship between the *UN Fish Stocks Agreement* and *CAMLR Convention* is not expressly defined in either convention. Further, the *CAMLR Convention* is not readily characterised as a regional implementation of the *UN Fish Stocks Agreement* because it: (1) predates the latter convention; (2) applies not solely to high seas areas but to a combination of high seas areas, unambiguous national maritime zones, and waters subject to national maritime claims that are not asserted against other States; and (3) has a broad subject matter jurisdiction concerning “Antarctic marine living resources” that is not confined simply to straddling or highly migratory fish stocks.¹⁰² However, the *UN Fish Stocks Agreement* does not define the concept of “subregional or regional fisheries management organisations or arrangements” in restrictive terms.¹⁰³ There is no specific definition of the term “regional fisheries management organisation”, and the term “arrangement” is defined broadly to mean:

a cooperative mechanism established in accordance with the Convention and this Agreement by two or more States *for the purpose, inter alia*, of establishing conservation and management measures in a subregion or region for one or more straddling fish stocks or highly migratory fish stocks [emphasis added].¹⁰⁴

As a result of the italicised language, the above definition refers to cooperative mechanisms, such as the *CAMLR Convention*, having purposes other than the establishment of regional conservation and management measures for straddling or highly migratory fish stocks.¹⁰⁵ Accordingly, the *CAMLR Convention*’s broader remit would not excuse States Parties to the *UN Fish Stocks Agreement* from their obligations to cooperate with CCAMLR conservation measures concerning straddling or highly migratory fish stocks. However, any CCAMLR measures concerning stocks that are not straddling or highly migratory, would, arguably, fall beyond the subject matter jurisdiction of the Fish Stocks Agreement and would not therefore be subject to its cooperative obligations.

Madrid Protocol, Annex V, Articles 3 and 4

Agreement are CAMLR Convention non-parties: UN Division of Ocean Affairs and the Law of the Sea, Status of the United Nations Convention on the Law of the Sea ... as at 20 September 2011, http://www.un.org/depts/los/reference_files/status2010.pdf. Note however that several States counted within this total are members of the European Union, which is party to the *CAMLR Convention*.

¹⁰⁰ The agreement was designed to address the perceived shortcomings of the *LOSC* provisions and the significant decline of many such commercially harvested fish stocks during the 1980s and 1990s. See, for example, David Balton, “Strengthening the Law of the Sea: the New Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks,” *Ocean Development and International Law*, 27 (1996):125.

¹⁰¹ See, *UN Fish Stocks Agreement*, Articles 8-13, 17.

¹⁰² For further discussion see, Molenaar, “CCAMLR and Southern Ocean Fisheries.”

¹⁰³ *Ibid.*

¹⁰⁴ *UN Fish Stocks Agreement*, Article 1(1)(d).

¹⁰⁵ Molenaar, “CCAMLR and Southern Ocean Fisheries,” 496.

The *Madrid Protocol* establishes a environmental protection framework within the area of application of the *Antarctic Treaty*.¹⁰⁶ The Protocol and its associated annexes set out detailed stringent obligations to plan and carry out activities so as to limit environmental impacts, to conduct prior assessment of possible environmental impacts, and to undertake regular and effective monitoring of the Antarctic environment.¹⁰⁷ The designation of MPAs is enabled by Articles 3 and 4, Annex V of the Protocol, which provide respectively for the designation of “any area, including any marine area” as an Antarctic Specially Protected Area (ASPAs) or an Antarctic Specially Managed Area (ASMA) in which various restrictive measures can be applied in accordance with a detailed area-specific management plan.¹⁰⁸ The overarching purpose of ASPAs is “to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research.”¹⁰⁹ The overarching purpose of ASMAs is “to assist in the planning and co-ordination of activities, avoid possible conflicts, improve co-operation between Parties or minimise environmental impacts.”¹¹⁰ As these objectives suggest, ASPAs are more restrictive of human activities than ASMAs. For example: entry into ASPAs is subject to a permit issued appropriate national authorities, which may only be issued “for a compelling scientific purpose which cannot be served elsewhere and which

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will not jeopardise the natural ecological system in that Area.”¹¹¹ In contrast, entry into an ASMA does not require a permit.¹¹²

Unlike *CAMLR Convention* Article IX closed area designations, ASMAs and ASPAs can restrict human activity unrelated to MLR management. Indeed the subject matter jurisdiction of the Protocol encompasses environmental matters generally – Article 2 provides that:

The Parties commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems and hereby designate Antarctica as a natural reserve, devoted to peace and science.

However, there are three key functional limitations of ASPA and ASMA designations that constrain that constrain the implementation of highly restrictive MPA policy options (for example measures consistent with IUCN Categories Ia and Ib). The first is a result of specific provisions that limit the subject matter jurisdiction of the *Madrid Protocol*. Article 4(2) of the Protocol provides that “[n]othing in this Protocol shall derogate from the rights and obligations of the Parties to this Protocol under the other international instruments in force within the Antarctic Treaty system.” Article 7 provides that “[n]othing in this Annex shall derogate from the rights and obligations of Parties” under the *ICRW*. Article 6(2), Annex V also provides that:

no marine area shall be designated as an Antarctic Specially Protected Area or an Antarctic Specially Managed Area without the prior approval of the Commission for the Conservation of Antarctic Marine Living Resources.

¹⁰⁶ Catherine Redgwell, “Environmental Protection in Antarctica: The 1991 Protocol,” *International and Comparative Law Quarterly*, 43 (1994): 599; and Christopher Joyner, “The 1991 Madrid Environmental Protection Protocol: Contributions to Marine Pollution Law,” *Marine Policy*, 20 (1996):183.

¹⁰⁷ Broad environmental management principles are set out in Article 3 of the *Madrid Protocol*. In relation to environmental impact assessment (EIA) procedures, see Article 8 and Resolution 4 (2005), ATCM XXVIII, CEP VIII, Stockholm.

¹⁰⁸ See, *Madrid Protocol*, Annex V, Articles 1-12.

¹⁰⁹ *Ibid.*, Annex V, Article 3.

¹¹⁰ *Ibid.*, Annex V, Article 4.

¹¹¹ *Ibid.*, Annex V, Article 3, 7.

¹¹² *Ibid.*, Annex V, Article 4.

The effect of these provisions is that (1) in substance, ASPA and ASMA designations under the *Madrid Protocol* do not apply to any harvesting of MLR undertaken pursuant to the *ICRW* (concerning whales) or *CAMLR Convention* (concerning MLR generally); and (2) procedurally, the designation of marine areas as ASPAs or ASMAs cannot proceed without the cooperation and approval and CCAMLR.

The second functional limitation of ASPA and ASMA designations arises from the voluntary nature of participation in the *Madrid Protocol* – vessels that are not-flagged its States Parties are of course under no obligation to abide by obligations set out in the Protocol, including those concerning ASPAs and ASMAs. The third functional limitation arises from the limited spatial coverage of the *Madrid Protocol* which, as noted above, does not extent throughout Antarctic waters but rather to waters located south of 60°S Latitude. It does not therefore enable the designation of ASPAs or ASMAs extending north of 60°S Latitude but within the northern limit of the Antarctic convergence.

In contrast to recent practice within CCAMLR, the *Madrid Protocol's* MPA designation provisions have seen limited use. Several marine ASPAs and ASMAs

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have been designated but they are small in scale and primarily located in coastal areas.¹¹³ The limited designation of marine ASPAs and ASMAs is unsurprising given the first functional limitation of the *Madrid Protocol* discussed above. Taking into account this limitation, the ATCM formally decided in 2005 to require prior approval from CCAMLR of certain marine ASPA and ASMA designations.¹¹⁴ It has also in practice deferred to CCAMLR to take the organisational and institutional lead on matters concerning the establishment of MPAs. Within the ATCM there have been several discussions concerning the potential for ASPAs and ASMAs to complement CCAMLR MPAs however no framework for complementary designations has been established to date.

ICRW Articles IV and V

The *ICRW* applies globally and, as alluded to above, is the principal international instrument concerning the conservation and management of whales.¹¹⁵ The primary objective set out in the *ICRW* is the conservation of whales, for the purpose of enabling the development of the global whaling industry.¹¹⁶ The Convention establishes an International Whaling Commission (IWC)¹¹⁷ which, in accordance with Articles IV and V of the *ICRW*, is attributed broad regulatory responsibility regarding management (including spatial management) of the commercial exploitation of whales. The regulatory responsibility of the IWC does not cover so-called “special permit” whaling, which a Contracting Government may authorise its nationals to undertake for scientific purposes.¹¹⁸ Because the competence of the IWC is confined to the management of human interactions with particular species (that is, whales), it does not have the capacity to implement spatial protection measures other than those falling under IUCN Category IV. However, a key advantage of IWC protective measures is their

¹¹³ For an overview of the relevant ASMA and ASPA designations see, Susie Grant and Phil Trathan, “Marine Protected Areas in the Southern Ocean”. The authors note that: ‘the ATCM has designated 6 exclusively marine...[ASPAs]...4 ASPAs with both marine and terrestrial components, and 3...[ASMAs] with both marine and terrestrial components ...’

¹¹⁴ See ATCM Decision 9 (2005).

¹¹⁵ Note also the *Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic*, opened for signature 9 April 1992, entered into force 7 July 1992 – a regional agreement between the Faroe Islands, Greenland, Iceland, and Norway.

¹¹⁶ This objective is reflected in a paragraph of the Convention’s preamble: “having decided to conclude a convention to provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry.”

¹¹⁷ *ICRW*, Article III.

¹¹⁸ *Ibid.*, Article VIII.

ability to complement MPAs designated under the *CAMLR Convention* or *Madrid Protocol* which,

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as noted above, exhibit functional limitations concerning marine mammals and apply without prejudice to the *ICRW*.

This complementary potential has been realised in practice. Despite the emphasis placed on the exploitation of whales in the text of the *ICRW*, measures established by the IWC have evolved to focus primarily on whale conservation. In 1979 the IWC established a whale sanctuary in the Indian Ocean in which commercial whaling is prohibited.¹¹⁹ In 1982, this measure was complemented by an IWC decision establishing a global moratorium on commercial whaling.¹²⁰ The Commission also voted in 1994 to adopt a whale sanctuary in the Southern Ocean in which commercial whaling is prohibited.¹²¹ These restrictive measures have remained in place despite significant lobbying efforts by several States in support of their removal.¹²² The Southern Ocean whale sanctuary extends throughout Antarctic waters, apart from in one area between 20°E Longitude and 130°E Longitude that is covered by the Indian Ocean whale sanctuary.¹²³ Accordingly, all whaling not covered by the special-permit exception is prohibited throughout Antarctic waters. Citing this exception, Japan has on several occasions authorised Japanese vessels to engage in harvesting of minke and sperm whales in Antarctic waters.¹²⁴ Several States, in particular Australia and New Zealand, have actively protested Japan's actions on the basis that, *inter alia*, the authorised whaling is not for a scientific purpose and amounts to an abuse of the special-permit exception.¹²⁵ In May 2010 the Australian government initiated proceedings in the International

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Court of Justice concerning the Japanese Government's authorisation of whaling by Japanese vessels in Antarctic waters.¹²⁶ In February 2013 the Court authorised New Zealand to intervene in the proceedings.¹²⁷ Further progress will be keenly observed.

¹¹⁹ See the IWC website, <http://iwcoffice.org/conservation/sanctuaries.htm>.

¹²⁰ *ICRW*, Schedule to the Convention, paragraph 10(e), http://iwcoffice.org/_documents/commission/schedule.pdf. Increased participation in the *ICRW* afforded decision-making power to States opposed to the commercial exploitation of whales, see: Patricia Birnie, "Thirty-Fourth Meeting of the International Whaling Commission: Brighton, UK, 19-24 July 1982," *Marine Policy*, 7 (1983): 64.

¹²¹ International Whaling Commission, "Forty-Sixth Report" (1994), section 12.3 of the Chairman's report. See also Elisa Morgena, "Whale Sanctuaries: An Evolving Concept within the International Whaling Commission," *Ocean Development and International Law*, 35 (2004): 319.

¹²² See, Mike Iliff, "The International Whaling Regime post 2007," *Marine Policy*, 32 (2008): 522; Mike Iliff, "The Hogarth Initiative on the Future of the International Whaling Commission," *Marine Policy*, 34 (2010): 360.

¹²³ The sanctuary's northern boundary follows the 40°S parallel of latitude, with two exceptions: In the Indian Ocean sector it joins the southern boundary of the Indian Ocean whale sanctuary at 55° South Latitude. Around South America and in parts of the South Pacific Ocean the boundary is located at 60° South Latitude: *ICRW*, Schedule to the Convention, paragraph 7(b).

¹²⁴ See, Independent Panel of Legal and Policy Experts, "Japan's 'Scientific' Whaling Program and the Antarctic Treaty System," (12 January 2009), <http://cbialdia.mardcetaceos.net/archivos/download/ReporteCanberrazc1527.pdf>.

¹²⁵ See, for example, Joanna Mossop, "When Is a Whale Sanctuary Not a Whale Sanctuary? Japanese Whaling in Australian Antarctic Maritime Zones," *Victoria University of Wellington Law Review*, 34 (2005): 757.

¹²⁶ Government of Australia, Application Instituting Proceedings, 31 May 2010, <http://www.icj-cij.org/docket/files/148/15951.pdf>.

¹²⁷ See International Court of Justice, Press Release 13 February 2013, <http://www.icj-cij.org/docket/files/148/17266.pdf>.

MARPOL Annexes I, II and V

MARPOL is the principal international instrument concerning the prevention of marine pollution by ships from operational causes (that is, other than dumping).¹²⁸ There are currently 151 Contracting States to *MARPOL*, whose combined merchant fleets constitute approximately 99 per cent of the gross tonnage of the world's merchant fleet.¹²⁹ Annexes to the Convention set out detailed regulations concerning, inter alia, the discharge from ships of oil, chemicals, sewage, garbage, and air pollution.¹³⁰ Annexes I (oil), II (noxious liquid substances carried in bulk), and V (garbage) of the Convention provide for the designation of "Special Areas" subject to mandatory restrictive measures for preventing sea pollution.¹³¹

Because Special Area designations do not provide a basis for restricting the harvesting of MLR, they are not a suitable primary mechanism for implementing MPA policy options consistent with IUCN Categories discussed above. However, a key advantage of *MARPOL* provisions is their ability to supplement MPAs designated under CCAMLR or the *Madrid Protocol* through the imposition of spatially-based restrictive measures on most vessels flagged to non-parties to those instruments (in particular the increasing number of cruise ships and other tourism-related vessels operating in Antarctic waters).

Waters located south of 60°S Latitude have been designated as a Special Area for the purposes of *MARPOL* Annexes I, II and V, and *MARPOL* Annex I has also been used to prohibit the carriage or use of certain heavy grade oils, again in waters south of 60°S Latitude.¹³² *MARPOL* and the *Madrid Protocol* have overlapping

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subject matter jurisdiction concerning operational vessel source pollution in waters below 60°S Latitude. Potential conflicts these instruments are addressed in part by a specific deference to *MARPOL* contained in Annex IV of the *Madrid Protocol* (concerning certain types of marine pollution).¹³³ The relationship between the two instruments in other marine contexts is not clearly defined and different States have taken different positions on this issue in practice.¹³⁴

SOLAS Chapter V

SOLAS is the principal international instrument concerning the safety of merchant ships.¹³⁵ The central objective of the Convention – which contains 12 Chapters of detailed obligations and technical requirements – is to specify minimum standards for the construction, equipment and operation of such ships.¹³⁶ There are currently 161 Contracting States to

¹²⁸ Vaughan and Lowe, *Law of the Sea*, 339.

¹²⁹ IMO, "Status of Multilateral Conventions . . .," (as at 16 February 2012), <http://www.imo.org/About/Conventions/StatusOfConventions/Documents/Status%20-%202012.pdf>.

¹³⁰ International Maritime Organization, "International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto", http://www.imo.org/Conventions/contents.asp?doc_id=678&topic_id=258.

¹³¹ For further discussion see Markus Kachel, *Particularly Sensitive Sea Areas: The IMO's Role in Protecting Vulnerable Marine Areas* (Heidelberg: Springer, 2008), 97–101.

¹³² See, IMO, "Special Areas under MARPOL,, <http://www.imo.org/OurWork/Environment/PollutionPrevention/SpecialAreasUnderMARPOL/Pages/Default.aspx>. Note also ongoing efforts to develop a mandatory Polar Code designed to minimise navigational risks and mitigate the impacts of any incidents that do occur: See Antarctic and Southern Ocean Coalition, "Working Towards a Mandatory Polar Code," (October 20, 2010), http://asoc.org/storage/documents/IMO/ASOC_Polar_Code_Briefing_October_2010.pdf.

¹³³ *Madrid Protocol*, Annex IV, Article 14. See, Kevin Wood, "The Uncertain Fate of the Madrid Protocol to the Antarctic Treaty in the Maritime Area," *Ocean Development and International Law*, 34 (2003): 139.

¹³⁴ *Madrid Protocol*, Annex IV, Article 14.

¹³⁵ IMO, "[Overview of the] International Convention for the Safety of Life at Sea (SOLAS), 1974", [http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-\(solas\)-1974.aspx](http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-(solas)-1974.aspx).

¹³⁶ *Ibid.*

SOLAS, whose combined merchant fleets constitute approximately 99 per cent of the gross tonnage of the world's merchant fleet.¹³⁷ SOLAS Chapter V provides for the designation of "areas to be avoided" (ATBAs) by ships or certain classes of ships where, *inter alia*, there is a possibility that unacceptable damage to the marine environment could result from a navigational incident.¹³⁸

Because ATBA designations impact only upon vessel navigation, they are not a suitable primary mechanism for regulating MLR harvesting through implementation of varied MPA policy options. However, a key advantage of ATBAs is their ability to supplement MPAs designated under CCAMLR or the *Madrid Protocol* through the imposition of spatially-based restrictive measures on most vessels flagged to non-parties to those instruments (in particular the increasing number of cruise ships and other tourism-related vessels operating in Antarctic waters).

As far as the author is aware, there are currently no designated ATBAs in Antarctic waters. A noteworthy potential means of designating such areas is the

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identification of a Particularly Sensitive Sea Area (PSSA) in Antarctic waters in accordance with procedures developed by the International Maritime Organisation (IMO).¹³⁹ A PSSA is an area of the marine environment that needs special protection through action by the IMO because of its significance for recognised ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities.¹⁴⁰ IMO Member Government(s) are entitled to propose the identification of a PSSA in particular location(s).¹⁴¹ PSSA proposals must be accompanied by supporting information in addition to stated 'associated protective measures' that would enable protection of the PSSA.¹⁴² Associated protective measures may include, *inter alia*, SOLAS ATBAs or MARPOL Special Areas.¹⁴³ At present, no PSSAs have been identified in Antarctic waters.¹⁴⁴

Conclusion and Recommendations

The foregoing discussion has identified several legal provisions that each enable the designation of some form of MPA in Antarctic waters, and each exhibit functional and jurisdictional limitations that constrain their ability to implement of certain MPA policy options. A key limitation of the surveyed frameworks is that none of them independently enable the designation of highly restrictive MPAs consistent with IUCN Categories Ia or Ib. Given the functionally-limited nature of legal frameworks enabling marine spatial protection in Antarctic waters, there is a clear need to coordinate their implementation. Indeed, functionally comprehensive spatial protection of Antarctic waters can only be achieved via (1) the complementary or parallel designations of MPAs in Antarctic waters using multiple legal mechanisms; and (2) the continued development of procedures and informal consultative networks that coordinate MPA-related decision-making undertaken within CCAMLR, the

¹³⁷ IMO, "Status of Multilateral Conventions and Instruments."

¹³⁸ SOLAS Chapter V, Regulation 10. See also, Julian Roberts, "Protecting Sensitive Marine Environments: The Role and Application of Ships' Routeing Measures," *The International Journal of Marine and Coastal Law*, 20 (2005):135.

¹³⁹ Concerning PSSAs generally see: Julian Roberts, *Marine Environment Protection and Biodiversity Conservation: The Application and Future Development of the IMO's Particularly Sensitive Sea Area Concept* (Heidelberg: Springer, 2010).

¹⁴⁰ IMO Res A.982, 24th Session (2005) Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas, <http://docs.imo.org/Shared/Download.aspx?did=35657>.

¹⁴¹ *Ibid.*

¹⁴² *Ibid.*

¹⁴³ *Ibid.*

¹⁴⁴ For a list of currently identified PSSAs see [http://www.imo.org/OurWork/Environment/Pollution Prevention/PSSAs/Pages/Default.aspx](http://www.imo.org/OurWork/Environment/Pollution%20Prevention/PSSAs/Pages/Default.aspx).

ATCM, IMO, ICRW, and national government agencies with competence concerning the designation of MPAs in Antarctic waters.

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Several complementary or parallel MPA designations already exist in Antarctic waters. For example, Special Area designations under *MARPOL* address functional limitations of the *CAMLR Convention* (no subject matter jurisdiction unrelated to MLR) and *Madrid Protocol* (concerning vessels flagged to non-Parties). The Southern and Indian Ocean whale sanctuaries established by the ICRW address functional limitations of the *CAMLR Convention* and *Madrid Protocol* (concerning the harvesting of whales). An important outstanding issue is the absence of ASPAs, ASMAs and ATBAs that complement MPAs designated under the *CAMLR Convention*. Coordinated use of relevant *CAMLR Convention*, *Madrid Protocol* and *SOLAS* Chapter V provisions is the subject of ongoing diplomatic discussion.¹⁴⁵ Such action is also clearly contemplated by provisions contained in these instruments,¹⁴⁶ and in the CCAMLR Framework Conservation Measure concerning MPAs, which contains the following language:

When a new CCAMLR MPA is designated, the Commission shall endeavour to identify which actions by other elements of the Antarctic Treaty System, and other organisations, such as the International Maritime Organisation, should be pursued to support the specific objectives of the MPA once established.¹⁴⁷

It remains to be seen whether the coordinated approach envisaged by this language results in the establishment of additional complementary MPA designations and the further strengthening of spatial protection of Antarctic waters.

¹⁴⁵ See generally, Antarctic and Southern Ocean Coalition, "Rising to the challenge: Key steps to deliver a Comprehensive and Representative Marine Protected Areas Network in the Southern Ocean by 2012," Information Paper 83, Antarctic Treaty Consultative Meeting 13, http://www.asoc.org/storage/documents/Meetings/ATCM/XXXIII/MPAs_ip083_e-1.pdf.

¹⁴⁶ See, for example, *CAMLR* Article XXIII – which requires the Commission and Scientific Committee to ‘co-operate with the Antarctic Treaty Consultative Parties on matters falling within the competence of the latter.’ Note also CCAMLR Conservation Measure 91-02 (2012), which provides briefly that “Each Contracting Party shall ensure that their fishing vessels licensed in accordance with Conservation Measure 10-02 are aware of the location and relevant management plan of all designated ASPAs and ASMAs which include marine areas listed” in an Annex to the former Conservation Measure.

¹⁴⁷ CCAMLR Conservation Measure 91-04 (2011), paragraph 10.