1. Polar oceans governance: shifting seascapes, hazy horizons

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INTRODUCTION

The Arctic and Southern Oceans are ‘poles apart’ on many fronts. The Arctic Ocean is surrounded by five coastal states, Canada, Denmark/Greenland, Norway, the Russian Federation and the United States, each having clear rights and responsibilities over offshore jurisdictional zones allowed under the law of the sea (see Map One).¹ The Antarctic is a continent with no generally recognized coastal states. The Antarctic Treaty² has placed in ‘deep freeze’ the claims of seven states to parts of the continent and over possible offshore jurisdictional zones (see Map Two).³ The Arctic has permanent human inhabitants, including many coastal indigenous communities,⁴ while the Antarctic hosts temporary residents at scientific stations.⁵ The Antarctic is subject to an indefinite

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² Antarctic Treaty, opened for signature 1 December 1959, 402 UNTS 71.
³ Claimant states are Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom. VanderZwaag, above n 1.
⁵ For an overview of scientific cooperation in the region, see Paul Arthur Berkman, Michael A. Lang, David W.H. Walton and Oran R. Young (eds), Science Diplomacy: Antarctica, Science, and the Governance of International Spaces (2011).
Moratorium on mineral exploration and development, while the Arctic is open for business for both hydrocarbon and mineral exploitation. Given the greater extent of ice-free ocean, Antarctic waters contain a larger number of marine organisms than the Arctic. For example, at least 24 Antarctic and sub-Antarctic seabird species number more than one million individuals while only about 13 Arctic and sub-Arctic seabirds reach that level.

Environmental change, however, is now the dominant and shared characteristic of both regions, especially as climate change makes its effects felt. Accelerating loss of polar ice sheets in Greenland and Antarctica could result in global mean sea level rise of greater than one metre above present day level by 2100. In September 2012, the sea ice extent in the Arctic fell to 3.41 million square kilometres, the lowest summer minimum extent in satellite record and nearly 44 per cent lower than the 1981–2010 average extent. While sea ice extents in the Southern Ocean have shown an overall increase, ice shelves along the Antarctic Peninsula have changed rapidly and around 28,000 km² of ice shelf has been lost. Shifts in the distribution of marine species are also occurring in both regions, although the extents and speed are still subject...
to uncertainties. For example, bluefin tuna have migrated into Southern Ocean waters across the Antarctic Convergence. Killer whales have been moving into the Arctic during the open water season, and various seabirds, including ivory gulls, have shown a more northerly shift.

Predicting polar fisheries changes in light of climate change is particularly difficult. Many variables are at play, including temperature, salinity, currents, light and possible cold water barriers. Scientific data are limited, particularly for ice-covered seasons and for certain remote areas such as the central Arctic Ocean (CAO). However, one study has predicted an overall fisheries increase in higher latitudinal regions, including the Arctic and northern edge of the Southern Ocean, by more than 50 per cent from the 2005 level but a considerable decline in the more southerly Antarctic region.

Ocean acidification is a further environmental change of concern in both polar regions. While ocean surface water pH has decreased by about 30 per cent over the past century, ocean acidification in polar waters is being exacerbated because CO₂ is more soluble in colder water. The amount of open water increasing in the Arctic is projected to allow for greater transfer of CO₂ from the atmosphere to the ocean and

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13 See, for example, CAFF, Life Limited to Ice: A Guide to Sea-Ice-Associated Biodiversity in This Time of Rapid Change (2 May 2013).
14 See Haward and Jabour, Chapter 2 this volume.
15 CAFF, above n 13, 68.
16 Ibid, 57.
17 On the many variables and the presence of a cold water barrier in the Bering and Chukchi Seas likely to deter movements of Pacific cod and walleye pollock into the Arctic, see Anne Babcock Hollowed, Benjamin Planque and Harald Loeng, ‘Potential Movement of Fish and Shellfish Stocks from the Sub-Arctic to the Arctic Ocean’ (2013) 22 Fisheries Oceanography 355.
22 Arctic Monitoring and Assessment Programme, Arctic Ocean Acidification Assessment: Summary for Policy Makers (2013) 1.
effects on marine organisms are likely to be variable, for example allowing some sea grasses to thrive but some shell-building molluscs to be adversely impacted. Ocean acidification significantly impacts embryonic development and hatch rates of Antarctic krill. A recent study predicts a possible Southern Ocean krill population collapse by 2300 with dire consequences for the entire ecosystem, unless CO₂ emissions are mitigated.

Globalization is a further driver of changes in the two polar regions, although to a greater extent in the Arctic. The Southern Ocean continues to face fishing pressures from outside the region and incidents of illegal, unreported and unauthorized (IUU) fishing are difficult to curb in light of limited surveillance and enforcement capabilities. Tourism interest in both regions is expected to increase as tourists look for unique ‘wilderness experiences’ in polar ocean frontiers. Marine scientific research exploration and activities are bound to expand as global interest grows over the effects of changing polar oceans on broader marine and terrestrial environments.

The Arctic is facing pervasive changes in light of its vast hydrocarbon and mineral resources. The Arctic is estimated to contain some 30 per cent of the world’s undiscovered natural gas and about 13 per cent of its undiscovered oil. A rapid growth in mining operations looms on the

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23 On the likely varying impacts on marine biodiversity, see Christine Michel et al., ‘Marine Ecosystems’ in CAFF, Arctic Biodiversity Assessment (2013) 378, 397–8.
26 Due partly to the global economic crisis, Antarctic tourist numbers have declined in recent years, estimated to be about 26,000 in 2011–2013 compared with some 46,000, in 2007–2008. Kees Bastmeijer, ‘The Antarctic Treaty System and the Regulation of Antarctic Tourism’ in Loukacheva, above n 9, 131.
27 Ibid.
28 See, for example, Susanne Wasum-Rainer, Ingo Winkelmann and Katrin Tiroch (eds), Arctic Science, International Law and Climate Change (2012).
29 Donald L. Gautier et al., ‘Assessment of Undiscovered Oil and Gas in the Arctic’ (2009) 324 (5931) Science 1175.
horizon, especially in Greenland, which sees its possible future independence from Denmark linked to building a market economy, with Chinese investment a likely mainstay.30

Arctic shipping also seems positioned to expand exponentially. The Northern Sea Route (NSR) off the Russian Federation has already seen voyages rise tenfold in two years, with the number of vessels traversing the NSR jumping from four in 2010 to 34 in 2011 and a reported 46 in 2012.31 The Northwest Passage and Transpolar Sea Route over the central Arctic Ocean also offer future potential shipping shortcuts, but a large number of variables make predictions on future navigational developments difficult. Those variables include bunker fuel and shipping insurance costs, icebreaker escort availability, marine infrastructure developments and global trade requirements.32 The practicality of forging substantial container shipping across the Arctic seems doubtful in light of the need for reliable shipping conditions and the existing network of ports of call for container ships.33

Climate change and globalization pressures have placed the spotlight on the adequacy and adaptability of governance arrangements for managing human uses of, and impacts on, polar seas,34 with two major images helping to capture the governance pictures. ‘Shifting seascapes’ is one descriptor, with governance arrangements in both polar regions being subject to substantial changes. ‘Hazy horizons’ is a second apt image, as

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33 Stephen M. Carmel, ‘The Cold, Hard Realities of Arctic Shipping’ (July 2013) 139/7/1 U.S. Naval Institute Proceedings Magazine 325.

many governance-related issues remain unresolved, such as future management arrangements for the areas of CAO beyond national jurisdiction, and whether non-parties to the Antarctic Treaty and other regional agreements will act consistently with the environmental principles and procedures forged over many decades.

This opening chapter, after providing a brief overview of the shifting seascape and hazy horizon realities, reviews the organizational format of this volume and highlights major findings of the chapters that it contains. Written by leading Canadian and Australian polar law and policy scholars, the chapters in this volume provide an up-to-date assessment of how polar oceans governance is faring in an era of unprecedented environmental change. The chapter concludes with a few thoughts on the ability of the two regional regimes to navigate the troubled waters of climate change.

SHifting SEASCAPES

The greatest shifts in polar governance arrangements have been occurring in the Arctic. The main regional cooperation arrangement, the Arctic Council, traditionally only a regional discussion and assessment forum and operating without any secure funding, has been undergoing major changes. The Council has established a permanent secretariat in Tromsø, Norway and the eight member states of the Council have agreed to share the administrative financing. In May 2013, the Council doubled its non-Arctic state observership by welcoming Italy and five Asian states, China, India, Japan, the Republic of Korea and Singapore, into the observer ‘club’. A reporting system has been adopted to ensure that recommendations from one of the Council’s most important reports,

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35 Climate change is estimated to be occurring some ten times faster than at any time in the past 65 million years. N.S. Diffenbaugh and C.B. Field, ‘Changes in Ecologically Critical Terrestrial Climate Conditions’ (2013) 341 (6145) *Science* 486.
38 See Arctic Council Secretariat, Kiruna Declaration, Kiruna, Sweden (15 May 2013) 6. The other observer states are France, Germany, The Netherlands, Poland, Spain and the United Kingdom.
the 2009 Arctic Marine Shipping Assessment (AMSA), are implemented. Canada, the present chair of the Council, has committed to establishing a Circumpolar Business Forum and developing guidelines for sustainable tourism and cruise ship operations. At the Council’s May 2013 Ministerial meeting, members agreed to establish a task force to work towards an arrangement to enhance regional marine scientific research cooperation.

By far the Arctic Council’s greatest governance shift has been the adoption of a treaty negotiating role. Council appointed task forces have successfully negotiated regional agreements on aeronautical and maritime search and rescue and cooperation in marine oil spill pollution response.

An Arctic Regional Hydrographic Commission (ARHC) was established in October 2010. The Commission, meeting annually, has as one of its key missions the enhancement of nautical charting in the region since many Arctic waters have not been charted to modern standards.

In light of the sophisticated Antarctic Treaty System (ATS) in place for the Southern Ocean, shifts in Antarctic governance arrangements have been, and are likely to continue to be, more limited than for the Arctic. The Antarctic Treaty was concluded in 1959, and built upon the treaty is a collection of instruments and treaties that together comprise the ATS.

42 *Kiruna Declaration*, above n 38, 5.
46 The Canadian Hydrographic Service has reported that only about 10 per cent of the Canadian Arctic has been surveyed to modern standards. AMSA report, above n 39, 158.
The Antarctic Treaty puts sovereignty disputes on hold, and demilitarizes and denuclearizes the continent. The ATS also provides a comprehensive framework for cooperation on Antarctic issues, including living and non-living resource management, scientific research and environmental protection.

The most significant shift in Antarctic governance since the adoption of the Antarctic Treaty came in the late 1980s, when the Antarctic Treaty Consultative Parties (ATCPs) were forced to confront the question of mining. Within a remarkably short period the ATCPs abandoned the 1988 Convention on the Regulation of Antarctic Mineral Resources, which would have allowed mining under international supervision in favour of a blanket ban under the 1991 Environmental Protocol which declared the Antarctic ‘a natural reserve, devoted to peace and science’, and ushered in environmental protection as the dominant discourse for Antarctic management. The Environmental Protocol carries significance beyond mining, as it is the primary means by which the Antarctic terrestrial and marine ecosystem is protected. In recent decades the shifting seascapes in Southern Ocean governance have been more incremental. In 2004 the Antarctic Treaty Secretariat was established to assist the ATCPs in Antarctic management. No new agreements have been adopted in the ATS, but there have been new treaties with a close relationship with the ATS, including most notably the 2001 Agreement on the Conservation of Albatrosses and Petrels which seeks to curtail the significant decline in these seabird populations in the Southern Hemisphere. On the margins of the Antarctic Treaty Area, several states including Australia, France and

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South Africa have cooperated (including through the adoption of agreements on mutual enforcement\textsuperscript{52}) to address IUU fishing. The parties to the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) have continued to grapple with the challenges of Southern Ocean fisheries management. The CCAMLR Commission has not been successful in all respects, as the continued problem of IUU shows. However, it has several achievements to its name, including generally precautionary conservation measures and the response to incidental catches of albatross and other seabirds.\textsuperscript{53}

A common shift for both polar regions is the ongoing negotiations within the International Maritime Organization (IMO) for a Polar Shipping Code. The Code is aimed at providing an overlay of polar shipping safety and environmental provisions to existing international shipping agreements.\textsuperscript{54} Originally scheduled to be concluded in 2012, the Code has been subject to difficult negotiations, especially over the environmental standards to be included in an environmental chapter. The IMO has set a target date of 2014 for adopting the Code.\textsuperscript{55}

HAZY HORIZONS

Ocean governance voyaging is far from over in either polar region, with various challenges and uncertainties looming on the horizon. For the Arctic, a host of governance-related questions hover over the future of the Arctic Council. Will regional oil and gas exploration and production standards be developed beyond the Council’s existing 2009 \textit{Arctic Offshore Oil and Gas Guidelines}\textsuperscript{56} Will the Council be able to facilitate the development of a regional network of marine protected areas (MPAs)?\textsuperscript{57}


\textsuperscript{55} Ibid.

\textsuperscript{56} Arctic Council, \textit{Arctic Offshore Oil and Gas Guidelines} (2009).

\textsuperscript{57} The Protection of the Arctic Marine Environment (PAME) Working Group has committed to forming a Marine Protected Areas expert group to explore the...
Will the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities be further strengthened and better implemented? How will a revised Arctic Marine Strategic Plan, presently under preparation, affect the future governance seascape? Will the capacities and the resource capabilities of the Council’s Permanent Participants be adequately supported? Will Arctic Council project financing be stable and sufficient? What will be the practical implications of ecosystem-based management in the Arctic? Will the Arctic Council be able to address the growing interests of non-Arctic states in, and their impacts on, the Arctic?

A long-term question is whether a framework convention might eventually be adopted to bring the Arctic into line with most other regional seas. Representatives of all five Arctic coastal states rejected development of a framework for an Arctic MPAs network. See PAME, *PAME Work Plan 2013–2015* (2013) 10.


A first scoping workshop for the revision of the 2004 Arctic Marine Strategic Plan was held 13–14 June 2013 in Reykjavik, Iceland and a revised version is expected to be delivered for approval at the 2015 Ministerial meeting. PAME, above n 57, 23.

Six indigenous organizations, presently having such status, are the Arctic Athabaskan Council, Aleut International Association, Gwich’in Council, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North and the Saami Council.

Arctic Council Ministers at their meeting in May 2013 requested Senior Arctic Officials to identify approaches to support the active participation by Permanent Participants along with recommendations on ways and means to strengthen how the Council’s work is carried out, and to present a report at the next Ministerial meeting in 2015. Kiruna Declaration, above n 38.

The Arctic Council has established a Project Support Instrument (PSI), administered by the Nordic Environment Finance Corporation (NEFCO), but the PSI has yet to become operational and it appears likely to limit funding to Arctic pollution prevention and mitigation activities. NEFCO, ‘Arctic Council Project Support Instrument’ <www.nefco.org/financing/arctic-council-project-support-instrument> (accessed 8 August 2013).

See Young, above n 34.

For a suggestion that such an agreement will likely be a future end point, see Heather Exner-Pirot, ‘New Directions for Governance in the Arctic Region’ (2012) *Arctic Yearbook 2012*, 225.
such an option, at least in the near term, through their May 2008 Ilulissat Declaration. The Declaration stated that the existing law of the sea provides a solid foundation for responsible management and that a new comprehensive international legal regime to govern the Arctic Ocean was not necessary.

Perhaps the most foggy future relates to governance of the CAO beyond national jurisdiction. Officials from the Arctic Five at their meeting in Washington, D.C., 29 April–1 May 2013, indicated that interim measures to address potential future commercial fisheries in the CAO might be useful, but discussions have yet to conclude over the timing and means for imposing potential interim measures. Extended continental shelf claims by Canada, Denmark/Greenland and the Russian Federation have yet to be considered by the Commission on the Limits of the Continental Shelf and the United States has yet to accede to the 1982 United Nations Convention on the Law of the Sea (LOSC), a precondition for such a claim to be submitted.

A looming CAO issue is the addressing of possible interests and concerns of indigenous communities and organizations over future governance directions. What type of future, commercialization versus conservation, do Indigenous peoples want for the CAO? How might they benefit from marine resources developments if they should occur?

The Antarctic region is also facing a considerable number of governance uncertainties, several that are fairly confined but others which are

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66 Ibid, 2.
67 Chairman’s Statement, Meeting on Future Arctic Fisheries, Washington, D.C., 29 April–1 May 2013 (on file with the authors).
68 Denmark offered to host further a meeting of officials to continue discussions. Ibid, 2.
69 Canada is expected to make its submission to the Commission in December 2013 with Denmark/Greenland to follow in 2014. The Commission requested additional information from the Russian Federation, which made an initial submission in 2001. Ted L. McDorman, ‘The International Legal Regime of the Continental Shelf with Special Reference to Polar Regions’ in Loukacheva, above n 9, 77, 86.
71 McDorman, above n 69, 87.
72 For a recent critique regarding the lack of Inuit consultation on continental shelf discussions, see Senator Charlie Watt, ‘Luncheon Address’ in Inuit Circumpolar Council, Circumpolar Inuit Response to Arctic Shipping Workshop Proceedings, Ottawa, Canada, March 14–15, 2013 (2013) 22.
unbounded. How does the ATS, with its avowed application to the Southern Ocean ecosystem, address large-scale Japanese special permit whaling? With the issue highlighted in the litigation in the International Court of Justice in the Whaling in the Antarctic case,73 can whaling continue to be excluded from the ATS agenda? With Russia blocking the approval of new MPAs in the Antarctic in the CCAMLR Commission, does this signal that the CCAMLR cannot live up to its promise to protect the Southern Ocean ecosystem?74 Is this an illustration of the weaknesses of the consensus-based ATS, with the lowest-common denominator position prevailing? How will the CCAMLR deal with warming waters, shifting fishery ranges and the movement of the polar front southwards?75 Will continental shelf issues continue to be kept relatively low key, or will the assertive approach by Argentina lead to a fresh outbreak of tension between claimants and non-claimants?76 Will states with sub-Antarctic continental shelf areas seek exception from the ban on mining throughout the Antarctic Treaty Area?77 How will the ATCPs deal with escalating interest in Antarctic affairs by Asian states, particularly China? And will it be possible to keep Antarctica and the Southern Ocean demilitarized?78

A common hazy horizon for the Arctic and the Antarctic is the future content and implementation of the Polar Shipping Code. As of the time of writing, various issues remain to be resolved in Code negotiations, including the appropriate training standards for ice navigators and the

76 Klaus Dodds, ‘The Antarctic Peninsula: Territory, Sovereignty Watch and the “Antarctic Problem”’ in Hemmings et al., above n 53, 93, 113–14.
strictness of environmental standards. Even when concluded, timely entry into force and ratification by all key states with polar shipping interests loom as challenges.

COORDINATES FOR READERS

This book approaches polar oceans governance issues in five distinctive Parts. In Part I, Marcus Haward, Julia Jabour and Lorne Kriwoken explain the physical and biological changes underway at both poles, and consider the profound implications of this for marine resource management. In their chapter on governance challenges in the Southern Ocean, Haward and Jabour ask whether the CCAMLR Commission can keep up with the pace of environmental change, and what role MPAs and reduced fishing effort can have in enhancing the resilience of the Antarctic marine ecosystem in the face of this biophysical transformation. They make concrete recommendations for how Australia and other CCAMLR parties can strengthen the adaptive capacity of the regime. Kriwoken journeys north, explaining how the Anthropocene signature is being inscribed upon the Arctic environment. He assesses the vulnerability of the Arctic region and its peoples to climatic change, with a particular focus on freshwater systems, terrestrial ecosystems, marine ecosystems and atmospheric changes. The dilemma for Arctic governance is that the main environmental pressures on the region are external, and while the main Arctic players (and emerging Arctic actors such as China) are the dominant producers of greenhouse gas emissions, they have been reluctant to use the Arctic platform to highlight the need for global climate change governance.

Rob Huebert’s chapter opens Part II, Geostrategic Dynamics in the Polar Oceans, with an analysis of the security implications of the changing Arctic environment. He tempers fears of an escalation of tension or outright conflict over Arctic natural resources given that Arctic

79 See Chapter 12 by Rayfuse in this volume. However, it should be noted that at the 65th session of the Marine Environment Protection Committee (MEPC) in May 2013, various environmental points were agreed upon for the Code including: prohibiting the discharge into the sea of oil or oily mixtures from any ships; only allowing discharge of food waste into the sea under certain conditions; and not regulating at this time the use of heavy fuel oil on ships operating in Arctic waters. See MEPC, Report of the Marine Environment Protection Committee on Its Sixty-Fifth Session, MEPC 65/22 (24 May 2013) 68–71.
states have committed to the LOSC regime for managing continental shelf issues. Huebert explains that the Arctic may be a theatre for new security risks, not because of Arctic issues themselves, but because as the ice melts the Arctic is attracting new military deployments by both Russia and the United States to respond to threats originating elsewhere. In her chapter Melissa Weber describes the Antarctic as ‘a realm of revived geostrategic machination’, but one where the dominant powers in the ATS are maintaining the legitimacy of the regime and its core compromise over sovereignty and its commitment to a demilitarized Antarctic continent and Southern Ocean.

In the four chapters in Part III, specific questions of resource management and environmental protection arising at both poles are considered. Rizal Abdul Kadir explains how joint development of marine resources provides a potential way forward for cooperation in the Arctic that can avoid difficult disputes over maritime boundaries. David Leary casts his gaze across a wide spectrum of resource issues at the poles, from hydrocarbons to psychrophiles, which have attracted interest from bioprospectors. He questions why so much popular and media attention has been focused on oil and gas and other mineral resource while the biotechnology developments, which are subject to far less regulatory oversight, have been largely ignored. Tim Stephens compares and contrasts the approaches that Australia and Canada are taking to secure entitlements to continental shelf areas at the poles, particularly those areas beyond 200 nautical miles requiring the production of data to the satisfaction of the Commission on the Limits of the Continental Shelf. He explains that both states are yet to confront the reality that hydrocarbon exploitation in either region is inimical to the commitment they both share to protect the poles from rapidly advancing climate change. Suzanne Lalonde’s chapter offers fresh insights on a topic of endless discussion: Canada’s sovereignty over the Northwest Passage. Lalonde poses the question of whether Canada’s environmental protection objectives for its Arctic waters could be achieved by designation as a particularly sensitive sea area, if at some point in the future the Passage were recognized as an international strait.

In Part IV the contributions drill down to national and foreign policy responses to polar oceans governance challenges in both Australia and Canada. Shelley Wright examines Inuit perspectives on environmental change, and explains the under-acknowledged role of Inuit in the story of Canada’s presence in the Arctic. Wright observes that, for the Inuit, the Arctic is not a strategic domain upon which states can project national ambitions but is their home, and they are experiencing the rapidity of environmental transformation first hand. Meinhard Doelle then examines
Canada’s approach to climate governance in the Arctic, explaining that because the polar regions present such visible evidence of climate change they could be good sites for climate policy innovation. Challenging the assumption that a policy response will naturally follow scientific observation and popular awareness, Doelle comes to the troubling conclusion that ‘the profound changes underway to the Arctic Ocean are receiving limited attention to date, and are clearly not driving climate policy in Canada’. Rosemary Rayfuse considers the future of shipping in the Arctic and the unfinished work of the IMO’s Polar Code. She explains that agreement on the Code has been impeded because of differing views among Arctic coastal states on the extent of their jurisdiction, particularly over ice-covered areas. While Rayfuse acknowledges that some delay in completing the Polar Code is not fatal given the currently limited extent of Arctic shipping, she contends that the Polar Code should be seen as a litmus test for polar oceans governance generally. Ted McDorman examines the complex relationship between Canada and the United States in addressing Arctic Ocean issues. He provides an analysis and update on key issues in dispute – the continental shelf in the Beaufort Sea, navigation in the Northwest Passage and the operation of the special provision for ice-covered waters, the so-called ‘Arctic exception’, in Article 234 of LOSC. McDorman explains that these issues are soluble through established dispute settlement mechanisms ‘if and when the two States decide the time is right’. Donald Rothwell provides a survey and analysis of the ways in which Australia has operated in a range of ATS bodies and forums to achieve outcomes that align with Australia’s foreign policy priorities. Rothwell explains how Australia has adopted a mix of unilateral, bilateral and multilateral approaches in advancing its agenda for Southern Ocean governance; both unilateral and bilateral initiatives to deal with fisheries enforcement around sub-Antarctic islands, and resort to domestic legal mechanisms and the International Court of Justice to address the ongoing controversy over Japanese special permit whaling in the Southern Ocean. As a middle power, Australia must be (and is) conscious of the constraints upon how assertive it can be within the ATS.

Part V seeks to look over the horizon at possible futures for polar oceans governance. Against a background of interest in the ATS as a model for Arctic Ocean cooperation, Ruth Davis examines the durability of the Antarctic regime and whether it is able to weather contemporary challenges, including climate change. She explains how the ATS has difficulty in several issue areas in looking outwards and engaging with other regimes in order to advance its own objectives. Davis sees climate change as a fundamental challenge to the core values of the ATS. David VanderZwaag invokes the imagery of the Arctic Council as an institution
that is ‘edging forward’ into an uncharted ‘sea of governance challenges’. He reviews how the Council’s six working groups and various task forces have been advancing the governance agenda. After highlighting the numerous global, interregional and national governance challenges facing the Arctic, he discusses regional challenges in more detail. Those challenges include addressing future governance of the central Arctic Ocean beyond national jurisdiction, putting the ecosystem approach into practice and firming up the Arctic Council.

FUTURE NAVIGATION

The polar regions have been crucibles for the development of rich and important practices in international law.80 In the Arctic there is a sense that this development is only now gaining real momentum, as the Arctic Council shrugs off its initial ambivalence towards legally binding frameworks, at least in certain specific areas of Arctic cooperation. Whether this may pave the way for an overarching legal regime of any equivalency with the ATS is doubtful,81 but there is no question that governance of the Arctic in an era of environmental change will continue to be characterized by more rather than less law.

The common challenge facing both the emerging Arctic regime and the developed Antarctic regime is how to respond to climate change – the most troubling signature of the Anthropocene. The signs of a response in the Arctic are more promising than the Antarctic, given the high visibility that climate change and ocean acidification have within the Arctic Council and the extensive programmes of research underway to understand and assess the rate of change and how it will affect the people and ecosystems in the North. In the Antarctic, there has been inadequate climate governance,82 with the ATCPs treating climate change primarily as a phenomenon to be studied, rather than one demanding an urgent response. Until 2008, a number of states actively prevented climate

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change from being placed on the agenda of the Committee for Environmental Protection.\textsuperscript{83} Another example can be found in the failure of the Commission for the Conservation of Antarctic Marine Living Resources to take seriously the threat that ocean acidification poses to the Antarctic ecosystem, and stocks of krill in particular. One of the strengths of the Antarctic regime is its durability. However, this also means that the ATS is not as flexible and dynamic as the emerging Arctic regime, and is not able to respond rapidly to anticipate and respond to changes that are over the horizon.
