

# Challenges and Opportunities for Southern Ocean and Antarctic Governance

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Surrounding the vast Antarctic continent is the treacherous Southern Ocean, which is rich in marine life. The Antarctic region is governed by the Antarctic Treaty System (ATS), which is made up of international agreements that manage marine resources and protect the Antarctic environment. Governance of this marine space is further complicated by other regimes outside of the ATS, such as the United Nations Convention on the Law of the Sea (UNCLOS), which gives Antarctic Treaty claimant states the ability to assert claims to adjacent offshore areas. In Australia's case, the Australian Antarctic Territory and its adjacent exclusive economic zone are not recognized by all states involved in activities in the region. Consequently, these governance issues have resulted in political tensions for claimant states over maritime boundaries, the use of marine resources in the Southern Ocean, and the level of environmental protection.

This chapter analyzes these geopolitical tensions and the ongoing challenges faced by states involved in activities in the Southern Ocean. It also addresses the opportunities that these governance arrangements can provide in this era of environmental and political uncertainty. Although the Southern Ocean is small compared to other oceans, it is known for being "large" in other ways: it has the Antarctic Circumpolar Current, the largest ocean current; it is one of the world's largest sinks for atmospheric

carbon dioxide; it has the largest waves on the planet; it is home to penguins, whales, seals, and numerous fish species; and it makes an important contribution to biological diversity (Johnson 2017). The Southern Ocean is healthy and supports several fisheries, including Antarctic krill, which is known as one of the remaining unexploited fish populations in the world's oceans (Brooks et al. 2020). The ecosystems of both the Antarctic continent and the Southern Ocean are intertwined, and as a result, the governance arrangements of the Southern Ocean cannot be examined in isolation. The international agreements that provide the framework for governance in the region—namely, through the ATS—regulate activities for both the Antarctic continent and the surrounding seas. Unlike the Arctic, which is a sea surrounded by land, the Antarctic is a continent surrounded by an ocean, and therefore jurisdictional and geopolitical issues differ between the two regions. Many state and non-state actors (such as non-governmental organizations) have vested interests in Antarctic and Southern Ocean marine resources, and decision making is often influenced by politics related to the region and/or beyond in other contexts. It is because of this that oceans governance in the Southern polar region is unique and often complicated.

The ATS is known as one of the most successful global multilateral governing systems (Brady 2011) and includes a number of agreements that are pertinent to oceans governance and marine resources management in the Southern Ocean: the 1959 Antarctic Treaty, the 1972 Convention for the Conservation of Antarctic Seals, the 1980 Convention of the Conservation of Marine Living Resources (CCAMLR), and the 1991 Protocol on Environmental Protection to the Antarctic Treaty (the so-called Madrid Protocol). The Antarctic Treaty applies to the area 60 degrees south latitude and includes areas within the Southern Ocean. The Madrid Protocol extends it to associated ecosystems, and CCAMLR's ocean area is even larger.<sup>1</sup>

Outside of the ATS, other international agreements also contribute to the governance framework of the Southern Ocean. These include the Convention on Migratory Species of Wild Animals, the 1983 Convention on International Trade of Endangered Species Wild Flora and Flora, the 1946 International Convention for the Regulation of Whaling, the 1973/78 Convention for the Prevention of Pollution from Ships (MARPOL), the

aforementioned UNCLOS, which is also known as the 1982 United Nations Law of the Sea Convention (LOSC), and other international environmental agreements. As a result, there is an emerging “regime complex” comprised of a number of regimes that interact with one another in a spatially defined area “in the sense that the operation of each affects the performance of others” (Young 2012, 394; see also Haward 2017; McGee and Haward 2019). LOSC outlines the basis for managing ocean space and provides definitions of key maritime zones for coastal states, based on the established baselines from which these zones are delimited (Haward and Vince 2008).

States involved in the Antarctic region and Southern Ocean are currently facing a multitude of issues and challenges; however, this chapter is limited to examining three of these challenges. The first arises from the legal maritime boundaries of claimant states (states that laid claim to territories on the Antarctic continent before the Antarctic Treaty came into force) and the political consequences of asserting new territorial claims. The second is the use of resources in the Southern Ocean. And the third is marine environmental protection. This chapter examines these from an Australian perspective to understand how a claimant state can address these challenges, and it suggests opportunities that can arise from oceans governance in the Antarctic region.

## **Governance of the Southern Ocean**

Global oceans governance has been fraught with challenges for the last century, with states attempting to resolve tensions about delineating boundaries, regulating access to marine resources and fisheries, and, more recently, protecting the marine environment. The ATS and LOSC provide a legal framework for establishing maritime boundary claims and for regulating marine resource management activities.

### **The Antarctic Treaty System**

The Antarctic Treaty is central to the ATS, and a prime example of good international relations based on the values of peace and scientific co-operation (Lord 2020), although geopolitics drives interactions between contracting parties (Haward 2017). The ATS bans military activity and is also a significant security instrument. Importantly, it incorporates

commitments to scientific collaboration. There are fifty-three contracting parties to the treaty and twenty-nine Consultative Parties. The original claimant states are Australia, New Zealand, France, Norway, the United Kingdom, Argentina, and Chile. Article 4 of the Antarctic Treaty is known as an “agreement to disagree” (Hodgson-Johnston 2015; Scott 2013). It stops any conflicts over existing territorial claims and rights in the region by the original claimant states and disallows new claims from being made and existing claims from being enlarged (Haward 2017). The Antarctic Treaty permits claimant states to continue asserting their territorial claims under article 4 while allowing signatories to the treaty to maintain their positions regarding the status of these claims (Titterton and Haward 2022).

Australia has one of the longest records of Antarctic engagement. This reflects its geographical proximity to the continent and the regional connections it maintains with it through climate and the Southern Ocean. Australia claims 42 per cent of the Antarctic continent, an area known as the Australian Antarctic Territory, and it had a major role in negotiating capstone features of the Antarctic Treaty. The proclamation of the Australian Antarctic Territory stops at the coastline of the Antarctic continent, and maritime areas are dealt with through LOSC (Haward and Bergin 2010). Only four states—France, New Zealand, Norway, and the United Kingdom—recognize Australia’s territorial claim. Other states see the Antarctic as a commons in “which no territorial sovereignty may be asserted and maritime zones claimed” (Hemmings and Stephens 2009, 4). This does not mean, however, that article 4 diminishes the existing territorial claims or sovereignty (Haward and Press 2010).

### The Law of the Sea Convention

LOSC was negotiated between 1974 and 1982 and entered into force in 1994. This convention provides rights for coastal states and establishes a regime of maritime zones. These zones include the territorial sea and contiguous zone, the exclusive economic zone (EEZ; which extends two hundred nautical miles from coastal baselines), the continental shelf, and the high seas. Sixty-four per cent of the world’s oceans are “high seas,” or areas beyond national jurisdiction (ABNJ; the area beyond EEZs). LOSC does not directly address Antarctica but covers the maritime areas south

60 degrees south latitude (the Antarctic Treaty area). There are further complexities to consider in understanding the maritime boundaries in the Southern Ocean. According to Johnson (2017), due to the sovereignty situation and the operation of article 4, the Southern Ocean's ABNJ cannot be wholly identified (of which more below). Kaye and Rothwell (2002) have also argued that territorial sea baselines are difficult to determine in Antarctica because of uncertainty about what is land and what is ice. The sub-Antarctic islands (such as Australia's Heard Island)—under national jurisdiction and outside the treaty area—are not subject to article 4 of the Antarctic Treaty and can legitimately generate EEZs and continental shelves.

The unresolved issues and challenges centre on the extent to which claimant states can claim rights as “coastal states,” or whether coastal states even exist in Antarctica given the particular status of Antarctic claims under the Antarctic Treaty. Antarctica was specifically excluded from discussions at the third and most lengthy United Nations Conference on the Law of the Sea (1973–1982) in order to keep Antarctic sovereignty issues separate from LOSC. Over time it has become an accepted view that claimants in Antarctica may make no new territorial claims but may create an adjacent EEZ or assert continental shelf rights (Sosin 2022). The establishment of EEZs has resulted in diplomatic tensions between Antarctic Treaty Parties, in particular states that do not acknowledge the territorial claims of the Antarctic continent or that see the Southern Ocean circumpolar waters as high seas rather coastal waters (Johnson 2017). Australia declared an EEZ of two hundred nautical miles adjacent to its Antarctic Territory in 1994.

### Claims for Extending the Continental Shelf

Under article 76 of LOSC, claimant states can apply to the Commission on the Limits of the Continental Shelf (CLCS) to extend their legal continental shelf. Australia began this process in the 1990s, which raised the issue of new territorial claims in the Southern Ocean. Interestingly, the Madrid Protocol recognizes the status of claimants and the ability of states to request the extension of the continental shelf (Ferrada 2018). The United States has maintained that it does not recognize any territorial claims in Antarctica and the seabed and subsoil of ocean areas adjacent to and

beyond Antarctica (United States of America 2004). This is consistent with its view of LOSC, which the United States has not ratified.

Recently, Australia's claim for an extended continental shelf adjacent to the Australian Antarctic Territory became a source of contention for other Antarctic Treaty Parties. Kaye (2015) argued that when claiming the continental shelf beyond two hundred nautical miles

the Australian government faced a difficult decision. If the AAT [Australian Antarctic Territory] possessed a continental shelf, and Article IV of the Antarctic Treaty did not prevent the assertion of such a shelf, then Australia would potentially undermine its claim by taking no action in support of a claim. To distinguish Antarctic lands from the rest of Australia would be to indicate that Australian sovereignty over these lands was of some inferior form. (344)

If the data were submitted to the CLCS there would likely be protests from other Antarctic Treaty Parties as it would reopen the issue of sovereignty. In 2004, Australia lodged its submission to extend its continental shelf, but asked the CLCS not to place the data regarding the shelf adjacent to the Australian Antarctic Territory under its active consideration. In doing so, it was consistent with its obligations to LOSC, which imposed a time limit on the lodgement of the data. Australia was able to legally oblige without compromising how the data were used or the CLCS's decision (Sosin 2022). The following note to the secretary-general of the United Nations, which accompanied Australia's submission, stated the following:

Australia recalls the principles and objectives shared by the Antarctic Treaty and UNCLOS, and the importance of the Antarctic system and UNCLOS working in harmony and thereby ensuring the continuing peaceful cooperation, security and stability in the Antarctic Area. (quoted in Howard and Bergin 2010, 615)

Australia recognized that most states consider the area subject to unresolved dispute, and Germany, India, Japan, the Netherlands, Russia,

and the United States had a strong “diplomatic response” to Australia’s extended continental shelf claim (Hemmings and Stephens 2009). These states expressed that they did not want the CLCS to consider Australia’s data in the Southern Ocean. Others were grateful for Australia’s request of the CLCS not to consider the shelf adjacent to the Australian territory. For instance, the United States stated that it “acknowledges with appreciation Australia’s request to the commission that it not take any action on that portion of its submission” (United States of America 2004, 1).

Only half of the extended continental shelf that Australia requested in the Southern Ocean was approved by the CLCS (Hemmings and Stephens 2009). The approved areas were adjacent to the territory of Heard Island and the McDonald Islands, and to Macquarie Island, which lie outside the Antarctic Treaty area. It is important to note that “the area of continental shelf is not a territorial claim, it is an area where rights can be exercised because a territorial claim already exists on land” (Press 2012).

New Zealand, Argentina, Norway, and Chile have also made full or partial submissions to the CLCS. New Zealand, Norway, and the United Kingdom have indicated that they may make submissions later (Wehrmann 2018). By claiming extended continental shelves, states can have access to offshore hydrocarbon resources (Joyner 2011). This is a pressing issue for many Antarctic Treaty Parties. Nevertheless, in 2009 during the fiftieth anniversary of the Antarctic Treaty, through a ministerial declaration, Treaty Parties reaffirmed their commitment to article 4 of the treaty and article 7 of the Madrid Protocol, which prohibits mineral resource extraction (Joyner 2011).

### Politics in Southern Ocean and Antarctic Governance

There is no doubt that politics has played a role in decisions regarding the Antarctic region. Individual states’ political interests are often discussed at Antarctic Treaty Consultative Meetings, and they affect many decisions. However, political interests have also been addressed in other fora, such as the Scientific Committee on Antarctic Research (SCAR), which is otherwise intended to focus on issues of a non-political nature. SCAR was created in 1958 in order to provide “objective and independent scientific advice” during the meetings (SCAR n.d.). Ferrada (2018) has claimed that the focus on politics is a result of the influence of non-governmental

organizations in meetings, particularly with regard to issues such as Antarctic tourism and climate change, where little regulation exists. The issues of sovereignty and maritime boundaries are a challenge for Antarctic Treaty Parties involved in Southern Ocean activities. Political decision making is a natural response to these issues. As long as the ATS remains unchanged, this challenge is unlikely to disappear.

## **Use of Marine Resources**

### **CCAMLR and Fisheries**

There will always be tension in the Antarctic region between how many and what types of resources should be exploited and what level of marine environmental protection is needed. The Southern Ocean has abundant fisheries and the potential for other activities such as seabed mining. Fishing in the Southern Ocean is risky and expensive, so the economic return for states has to be such that it justifies the effort. The krill and toothfish fisheries are growing and they are “of high dietary potential and high commercial value” (Ferrada 2018, 100). CCAMLR sets conservative catch limits on fish stocks and has put measures in place such as management areas to regulate fishing activities (Haward, Jabour, and Press 2012). CCAMLR was one of the first regional fisheries-management authorities to identify and address illegal fishing of Patagonian and Antarctic toothfish (Nilsson et al. 2016). Before 2000, illegal fishing in this region was conducted by large commercial vessels operating under flags of convenience (Warner 2018). This has now been reduced through the following measures: monitoring, control, and surveillance; illegal sighting reports; illegal vessel lists; recovery of illegal, unreported, and unregulated (IUU) fishing gear; port inspections; at-sea inspections; and compulsory vessel-monitoring systems (Nilsson et al. 2016). CCAMLR provides surveillance and prosecution support for its members. Its members participate in the Catch Documentation Scheme (CDS), which records toothfish catches at landing and then tracks them through the supply chain. By identifying the key players in the chain of custody, the CDS is a useful market-based tool to increase compliance with trade-related measures (Grilly et al. 2015). However, Grilly et al. (2015), who did an analysis of the CDS, found that there were more states involved in the toothfish trade than were reported



by CCAMLR through the CDS. CCAMLR is also unable to regulate the Southern Ocean fishing activities of non-member states (Warner 2018). Further investigation is required to determine the level of legality in the reporting system and whether knowledge of global trade patterns can provide the essential economic information needed by management authorities to effectively manage the toothfish trade (Grilly et al. 2015).

CCAMLR is also limited in its effectiveness by its data-retrieval processes and institutional structure. For instance, the secretariat does not receive vessel-monitoring data directly, and must instead request it from member states. Where countries are reluctant to share, due to political goals, failure to control their vessels, or other factors, the CCAMLR Secretariat has little capacity to obtain vessel-monitoring data (Vince, Wilcox, and Hardesty 2021). Although there are sources for some information on vessels in the region, these do not provide comprehensive monitoring due to coverage, data-processing needs, or the voluntary nature of the data provision. This makes it difficult for the secretariat to discover behaviour that should be discussed in the commission, and to confirm issues that it suspects are occurring.

Co-operation between CCAMLR and its members has been essential in battling IUU fishing. CCAMLR and Australian surveillance patrols around the sub-Antarctic Australian islands have resulted in no instances of IUU fishing in Australia's southern EEZ since 2005 (Australian Government Department of Agriculture 2014). Australian legal toothfish operators have been a large part of this success through their involvement in the Coalition of Legal Toothfish Operators. Australia and France agreed to co-operative surveillance and enforcement in both the Australian and French EEZs in the Southern Ocean through the 2003 Treaty between the Government of Australia and the Government of the French Republic on Cooperation in the Maritime Areas adjacent to the French Southern and Antarctic Territories, Heard Island, and the McDonald Islands. This agreement

provides for the exchange of information about the location, movements and other details of vessels suspected of fishing illegally to facilitate operational responses, logistical support in the conduct of hot pursuits and the undertaking

of cooperative research on marine living resources. There is also provision for surveillance of each party's maritime zones with the consent of the relevant coastal State. (Warner 2018, 15)

In 2007, Australia and France signed the Agreement on Cooperative Enforcement of Fisheries Laws between the Government of Australia and the Government of the French Republic in the Maritime Areas Adjacent to the French Southern and Antarctic Territories, Heard Island, and the McDonald Islands. This agreement allows each state to use law enforcement in each other's EEZs. This, too, has contributed to the decline of IUU fishing in the area (Australian Government Department of Agriculture 2014). In addition to reducing IUU fishing activities, collaborative efforts in the region between states and CCAMLR has decreased seabird mortality in the area (Österblom and Bodin 2012; Petrossian, de By, and Clarke 2016; Tuck, Polacheck, and Bulman 2003). It is important to note that not all states are in the same position as Australia and France, who can use surveillance and enforcement and are capable of bearing the large costs to monitor the Southern Ocean. Many are too busy with surveillance and enforcement in their own fishing zones to make any meaningful contribution to the high seas zone within CCAMLR's jurisdiction (Griggs and Lugten 2007). Despite the limitations of CCAMLR and member states, illegal fishing has decreased significantly in the Southern Ocean, but it has not been eliminated in areas outside of Australia's EEZ.

One of the factors that has made the elimination of IUU fishing difficult is that the high seas are governed by a principle of freedom. However, this "freedom" has required further definition and is often questioned when illegal activities occur. Negotiations are currently taking place under the auspices of the United Nations to establish a new internationally legally binding instrument for the conservation and sustainable use of the ABNJ (United Nations n.d.), known as the Marine Biodiversity Beyond National Jurisdiction Agreement (BBNJ). This agreement will focus on, *inter alia*, area-based management tools such as marine protected areas (MPAs), environmental impact assessments, and regulating biological prospecting and mineral resource exploitation.

## Commercial Biological Prospecting

Commercial biological prospecting has been an area of concern for Antarctic Treaty Parties. According to Joyner (2011),

Increasing scientific research on flora and fauna in and around Antarctica is being conducted with the aim of discovering commercially beneficial genetic and biochemical resources. Growing commercial interest in Antarctic genetic resources is evident, as indicated by the fact that products from Antarctic genetic resources are already being marketed by several companies, including nutraceuticals from krill oil, antifreeze proteins, anticancer drugs, enzymes, and compounds for cosmetic products. Much of this commercial activity focuses on the marine environment, in particular, the crustacean krill. Nearly 200 research organizations and companies from 27 states are undertaking research for commercial purposes in the Antarctic. Amongst the major sponsoring states are Japan, United States, Spain, United Kingdom, Korea, Canada, Sweden, Russia, China, Chile, New Zealand, France, Belgium, India, Denmark, the Netherlands, Germany, and Poland, all ATCPs [Antarctic Treaty Consultative Parties]. The most entries in the recently constructed Antarctic Bioprospecting Database originate from Japan and mainly focus on organisms in the marine environment, principally Antarctic krill. The second largest number of entries originate from United States, most of which also focus on marine biota, especially krill, bacteria, and fish. (98)

Bioprospecting will remain confined to discovery of new biological resources for now; however, the issues of commercial confidentiality and intellectual property rights and how they fit with the existing governance regime have not been addressed. The impact on the marine environment if large commercial operations are established will need to be further explored. No decision has been made during Antarctic Treaty Consultative Meetings regarding biological prospecting (Jabour 2013).

## Marine Protection

### Marine Protected Areas

The third challenge is to protect the Southern Ocean from the over-exploitation that has been wrought on other oceans. The Antarctic Treaty does not distinguish between terrestrial and marine living resources and neither do the Agreed Measures for the Conservation of Antarctic Fauna and Flora adopted in 1964 (Roura, Steenhuisen, and Bastmeijer 2018). Protection of marine species been addressed through the ATS as it has developed. Annex 5 to the Madrid Protocol provides for Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMAs) to be designated in the Antarctic Treaty area. It states, “For the purposes set out in this Annex, any area, including any marine area, may be designated as an Antarctic Specially Protected Area or an Antarctic Specially Managed Area” (art. 2(1), annex 5), and that activities in those areas “shall be prohibited, restricted or managed in accordance with Management Plans adopted under the provisions of this Annex.” According to Roura, Steenhuisen, and Bastmeijer (2018), eleven APSAs and three ASMAs contained a “marine component” and required approval by CCAMLR before they were adopted at Antarctic Treaty Consultative Meetings. Ten ASPAs and one ASMA that were not reviewed by CCAMLR also included a marine component, however they did not meet the criteria of Antarctic Treaty Consultative Meeting Decision 9 (2005). This decision stated that the areas that need prior approval by CCAMLR are those with harvesting potential or that may restrict CCAMLR-related activities.

Because the area of the Southern Ocean that is regulated by CCAMLR is even more extensive than the Antarctic Treaty area, it is widely recognized as covering a large ABNJ (De Santo 2018). The CCAMLR agreement is unique as it employs precautionary and ecosystem-based approaches to fisheries management. The commission includes members that are not parties to the Antarctic Treaty; however, these members must acknowledge the special obligations and responsibilities for the Antarctic Treaty Consultative Parties. The commission began discussing MPA management on the high seas in the 1990s. Over time this has become a politically contentious issue. CCAMLR requires full consensus on all decisions to be

passed, rather than a majority, and this can be a cause of conflict and can undermine international co-operation (Brooks et al. 2020).

In 2009, the South Orkney Islands Southern Shelf MPA, the world's first high seas MPA, was adopted. This happened relatively quickly; however, the MPA had no evaluation criteria or management and monitoring plans for implementation (Brooks et al. 2020). The proposal for this “no-take” MPA met with little resistance because fisheries were not impacted (Smith, McGee, and Jabour 2016). After the adoption of Conservation Measure 91-04 in 2011, a legal framework for MPAs and proposals for MPAs in the Ross Sea and East Antarctica were submitted. Most of the opposition to both proposals came from Russia and China; consensus was in the end not reached. The Ross Sea MPA was negotiated over several years, with objections raised about scientific uncertainty, the impacts on fisheries, and the commission's legal status to establish MPAs. Brooks et al. argued that the MPA negotiations “had broken trust in CCAMLR—a powerful sentiment in a commission with a small number of total representatives” (2020, 6). Political tensions between Russia and the United States were also identified as being a major factor in influencing negotiations due to political tensions caused by the war in the Ukraine. The Ross Sea MPA was adopted by consensus in 2016; however, a sunset clause was included that outlined a thirty-five year “end date” for the MPA (Ferrada 2018).

Negotiations over CCAMLR's MPAs continued to be contentious. In 2012, Australia, France, and the European Union proposed a marine park in East Antarctica that would be a representative system of seven MPAs and cover 1.8 million square kilometres. Due to objections from Russia and China, the park's size was reduced in 2017 to a million square kilometres. For eight consecutive years, CCAMLR members were unable to reach consensus to establish the marine park (Readfearn 2019). China (CCAMLR's newest member) and Russia voiced concerns over the no-take zones, and the two countries' interests in the krill fishery may be a reason why they have reservations about the marine park. It is known that China intends to develop its krill fishery and is investing heavily in polar fisheries technology (Liu 2019). Liu and Brooks (2018) have argued that China may change its objections to the East Antarctic marine park if Australia, France, and the European Union “find economic levers of influence and diplomatic common ground” (Liu and Brooks 2018, 194). In addition to

China and Russia, Ukraine and Japan have also been critical of proposals for MPAs in the Southern Ocean (Smith, McGee, and Jabour 2016). During the 2013 CCAMLR meeting, Ukraine suggested that “CCAMLR should delegate responsibility for MPAs to the Madrid Protocol” (Smith, McGee, and Jabour 2016, 184), and this is something that has also been discussed by Antarctic Treaty Consultative Parties.

For instance, in 2018–19, discussions by the Committee for Environmental Protection (created under the Madrid Protocol) and Antarctic Treaty Consultative Parties centred on integrating the ATS instruments for the protection of the marine environment with CCAMLR MPAs. New Zealand led informal discussions on this matter; however, all committee members were not convinced this was a suitable way forward for marine protection. Roura, Steenhuisen, and Bastmeijer (2018) argued, however, that an integrated approach and more consistent application of annex 5 could provide stronger protection for marine mammals and seabirds. They went on to say, “harmonisation would also apply to other Antarctic activities relevant for both land and sea, including shipping, tourism and scientific research, and to land-based sources of marine pollution” (Roura, Steenhuisen, and Bastmeijer 2018, 311). However, delegates at the 42nd Antarctic Treaty Consultative Meeting were unable to come to an agreement on the harmonization initiative, demonstrating the roadblock created by consensus decision making (Gardiner 2020). This example supports “a commonly shared criticism that the ATS is increasingly unable to develop environmental policy space with the rapidly changing Antarctic environment and subsequent conservation issues” (Gardiner 2020, 6).

## Tourism

The human impact on the Antarctic environment also needs to be considered in the scope of environmental protection. More than fifty thousand people visit Antarctica each year, and this number is increasing. The vast majority arrive by ship, navigating the Southern Ocean to reach their destination. Their time on the continent is also limited, with most of it spent on the ship. Antarctic tourism is a self-regulated activity. The International Association of Antarctica Tour Operators monitors and manages tourism and reports annually at the Antarctic Treaty meetings each year. The association represents industry but is also recognized as being “mindful of

the extraordinary responsibilities it carries for maintaining the integrity of the pristine Antarctic environment” (Haward, Jabour, and Press 2012, 603). However, due to the impact of the COVID-19 pandemic, it is anticipated that in the medium term (up to 2024), Antarctic tourism will be “severely” reduced and may even face collapse (Frame and Hemmings 2020).

Pollution from ships is also an important issue in the Australian Antarctic Territory; however, due to the pandemic, the of number of vessels in the Southern Ocean and the amount of pollution from these vessels are likely to decrease over the medium term (Frame and Hemmings 2020). The International Maritime Organization (IMO) already imposes strict regulation of shipping and pollution and a ban on heavy and intermediate fuel in the Antarctic Treaty area through MARPOL (see IMO Resolution 189(60), 26 March 2010). The increase of maritime activities in the future, once COVID-19 subsides, needs to be closely monitored to protect the marine environment. Human impact in Antarctica is an extensive topic that cannot be addressed in detail in this chapter; however, it is an important aspect of marine protection.

### Climate Change

Melting sea ice is already changing the Antarctic land and marine environments and the species living within them (McGee and Haward 2019). The impact of climate change has been evidenced in the polar regions more than any other place in the world, in fact, and CCAMLR members and Antarctic Treaty Parties who are already discussing this issue will find that the topic of climate change will continue to arise in future meetings. Climate change also has the potential of creating new political tensions between states (McGee and Liu 2019). McGee and Haward (2019) have argued that the ATS has been reluctant to engage with other international institutions in the Antarctic regime complex, and that will be a challenge ATS must face when attempting to address issues such as climate change.

### Plastic Pollution

Plastic has been found in the Southern Ocean and the polar regions since the 1960s (Masura et al. 2015; Suaria et al. 2020). CCAMLR has recognized ship-sourced pollution as an issue, and it has put strict measures in place to reduce such occurrences. For instance, there is a mandatory

requirement for fishers in the Southern Ocean to report gear loss to the CCAMLR Scientific Committee (CCAMLR 2015). However, land-based plastics are the most concerning type, and these have already made their way to the Southern Ocean. The 42nd Antarctic Treaty Consultative Meeting adopted a resolution aimed at “Reducing Plastic Pollution in Antarctica and the Southern Ocean” (Secretariat of the Antarctic Treaty 2019). It states that there is a “current lack of plastics monitoring data to inform decision-making,” and acknowledges that “the majority of plastic found in Antarctica originates from outside of Antarctica” (Secretariat of the Antarctic Treaty 2019). The resolution also recommends that SCAR members engage in studies to help quantify the amount of plastic pollution in the Antarctic region (Zhang, Haward, and McGee 2020). It is anticipated that this issue will continue to grow in significance for the ATS. In 2022, the United Nations Environment Assembly announced the development of a new, legally binding global plastics treaty (UNEP 2022). The regime complex in the Antarctic region may expand to include this new treaty. The solution to plastic pollution will require extensive coordination with other international organizations, states, and NGOs so that holistic solutions can reduce plastic pollution in the Antarctic region, and indeed in all the world’s oceans (Vince and Hardesty 2018). This may also be an opportunity for the ATS to evolve.

## **The Future and Opportunities**

There is an array of research that addresses the future of the Antarctic region. Some authors defend the ATS’s adaptability to new pressures (see, for example, Haward, Jabour, and Press 2012), while others have argued that the current governance framework will be unable to cope with present challenges (Chown et al. 2012). Ferrada (2018) outlined five future scenarios to be contemplated in Antarctica. These include political-legal implications: heterogeneity among states that participate in this international regime; pressure to internationalize Antarctic governance; the unresolved topic of sovereignty; the growing politicization of Antarctic technical and scientific discussions; and finally, the probable necessity of exploiting Antarctic resources more intensively. With respect to the Southern Ocean, while all of these will have an impact, it is the exploitation of marine resources that will continue to cause political tensions. Access to



fisheries and restrictions through MPAs are important concerns for many states. While Australia remains a claimant state and the Antarctic Treaty remains unchanged, Australia will continue, along with the other claimant states, to influence the governance of the Antarctic region (Ferrada 2018). Australia's roles in CCAMLR in combating illegal fishing, support of MPAs, and other interests in the Southern Ocean are a strength and opportunity.

The year 2048 will mark the point at which a conference could be called to review the Madrid Protocol, the key environmental protection instrument in the ATS. However, this can only occur if a number of complex conditions are met (Ferrada 2018). Many states may take the opportunity to revisit the issue of mining in the Antarctic region. Other measures that are used for environmental protection may also be reviewed. An integrated approach to marine resource protection within the ATS would be favourable, but it will be difficult to achieve. The forthcoming BBNJ Agreement may affect marine protection in the Southern Ocean, and its relationship to CCAMLR will need to be further explored.

## **Conclusion**

Governance of the Southern Ocean cannot be examined in isolation. This chapter focused on sovereignty in relation to the creation of EEZs and the claiming of extended continental shelves, and the challenge of resolving tensions between resource use and protection. These challenges can be overcome if current diplomatic efforts and peaceful coexistence continues. The governance of the Southern Ocean will be impacted by broader decisions about sovereignty and security; however, it is an area of the world that we can claim is rather well managed compared to others. CCAMLR will continue to be instrumental in achieving resource sustainability in the Southern Ocean, and consensus decision making can be an advantage as much as a disadvantage, allowing meaningful decisions to be made despite being driven by geopolitics. The governance of the Antarctic region is inherently political. The way these politics are managed is what strengthens the regime. Protecting the region from over-exploitation and continuing the sustainable use of resources will be a challenge, but one that can be achieved.

## NOTE

- 1 This region, as stated by CCAMLR, consists of all waters bounded by the Antarctic continent to the south, and to the north by a line starting at lat. 50°S, long. 50°W; thence due east to long. 30°E; thence due north to lat. 45°S; thence due east to long. 80°E; thence due south to lat. 55°S; thence due east to long. 150°E; thence due south to lat. 60°S; thence due east to long. 50°W; thence due north to the starting point.

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