LATIN AMERICA'S ENVIRONMENTAL POLICIES IN GLOBAL PERSPECTIVE

This series explores the international dimensions of Latin America's environmental challenges and the role of environmental issues in shaping the region's most important diplomatic and economic relationships.

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The Fragile Antarctic Peninsula: Conserving Biodiversity through Marine Protected Areas

By Andrea Capurro

In 2018 Argentina and Chile introduced a proposal to establish a marine protected area (MPA) in the Antarctic Peninsula, an outstanding example of both international and bilateral cooperation.

Despite major efforts and milestones toward achieving a network of MPAs by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), many challenges remain for marine conservation efforts in the Southern Ocean, as scientists urge the international community to take important steps in protecting biodiversity and fragile ecosystems to meet urgent conservation needs.

A few countries have opposed the Antarctic Peninsula MPA proposal, but this year could represent a monumental shift in protecting up to 1 percent of the world's oceans, including two other MPA proposals for the Weddell Sea and East Antarctic. This paper explores the Antarctic Peninsula MPA proposal specifically, examining the potential for its approval, the challenges it faces, and the future steps it must take to enhance multilateral cooperation and conservation goals in the Southern Ocean.

Photo credit: Chinstrap and gentoo penguins: Jordi Chias | National Geographic, Binational expedition Argentina and Chile in collaboration with NatGeo Pristine Seas to the Antarctic Peninsula, February 2019

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THE DELICATE ANTARCTIC ECOSYSTEM IS OFF-BALANCE

Antarctica is the coldest and windiest continent on Earth. It is one of the most remote and inhospitable places on our planet. Few people have been lucky enough to experience its vast extension of ice and its abundant and charismatic wildlife. It is home to penguins and seals that only inhabit this region, to whales that migrate thousands of kilometers each year to feed in the Southern Ocean, and to fish and colorful cold-water corals that have adapted to life in these frigid waters. The Antarctic is one of the last major refuges for wildlife on Earth, but as isolated as it seems, it is not exempt from human and other environmental pressures.

Antarctica and the Southern Ocean—the vast body of water that surrounds the continent—are rapidly changing in response to anthropogenic climate change. The atmosphere and water in West Antarctica, and in particular the peninsula, are warming faster than in the past,[1] and as a consequence, the Antarctic Ice Sheet—the massive layer of ice that covers the entire continent—is melting at an accelerated speed, due to the thinning of its associated glaciers and ice shelves.[2] Antarctic waters are also becoming more acidic—a process known as ocean acidification—as they absorb increasing amounts of carbon dioxide from human activities. These changes are having repercussions in biological, geological, and chemical cycles, profoundly altering Antarctica's marine ecosystems.[3]

Many marine species in the Southern Ocean have been exploited for well over 200 years. During the early and mid twentieth century, it is estimated that more than two million whales and nearly three million seals were hunted,[4] taking them to the brink of extinction. Several fish species were also decimated, reducing them to two-tenths of their original stock in just a few years,[5] and thousands of seabirds were killed as bycatch (or the incidental capture of nontarget species) in toothfish fisheries[6]—known by consumers as Chilean seabass. Most of these species are still recovering, despite management actions in recent decades.[7] Coping with climate change and rising temperatures, in addition to the current fishing pressures, has made it tremendously difficult for several species to regain past population levels.

Nowadays, the importance of the Antarctic as a global climate regulator is unquestionable. The distant waters surrounding the continent connect the ocean

basins of the Pacific, the Atlantic, and the Indian, as well as the surface and deep layers of the oceans, redistributing heat, salt, freshwater, and nutrients around the world. The Southern Ocean stores significant amounts of heat and carbon for decades to centuries, and in doing so it helps slow down the rate of global warming in the atmosphere.[8]

A NATURAL RESERVE DEVOTED TO PEACE, SCIENCE, AND INTERNATIONAL COOPERATION

The Antarctic is also an exceptional region in terms of its unique governance. During the Cold War, political tensions were rising over the sixth continent, and 12 countries were able to set aside their differences by negotiating the Antarctic Treaty (signed in Washington, DC, in 1959 and entered into force in 1961), considered by many to be the most successful international treaty of the twentieth century.

The treaty helped usher in an important system of multilateral cooperation, reserving the continent for peace, science, and international collaboration, all the while prohibiting nuclear activities and adequately protecting the interests of both territorial claimants and non-claimant states.[9] In particular, three countries hold overlapping sovereignty claims around the Antarctic Peninsula—Argentina, Chile, and the United Kingdom—and through the Antarctic Treaty System (which includes the Antarctic Treaty and its measures in effect, as well as the associated instruments and their measures in force), they were able to collaboratively work toward its protection.

The rapid and detrimental extraction of marine resources during the first half of the twentieth century raised alarm bells for scientists and environmentalists. The unregulated exploitation of a key species for the entire food web, Antarctic krill, became a major challenge for Antarctica's governance. These tiny shrimplike crustaceans play an incredibly vital role in the health of the Antarctic environment, as any negative effect on the krill could cascade to other trophic levels, putting the entire Antarctic ecosystem at risk.[10] These concerns gave rise to the Convention for the Conservation of Antarctic Marine Living Resources (signed in 1980 and entered into force in 1982; hereafter the Convention), an international agreement established for the conservation and management of marine life[11] in the waters encompassed by the Antarctic Convergence[12] (hereafter, Convention area), and an essential component of the Antarctic Treaty System.

The Convention fulfills its objective through the work of the Commission (CCAMLR) and its Scientific Committee (SC) by adopting legally binding conservation measures. Notably, decisions in the Antarctic are taken by consensus; for CCAMLR that means that 26 members (25 states plus the European Union) with diverse backgrounds, motivations, and sometimes competing interests (for example, in fishing) have to come together to negotiate and agree on how to move forward.

Following principles of conservation, CCAMLR pioneered the use of an ecosystem-based and precautionary approach to the management of fisheries that holistically regulates beyond the harvested species, avoiding long-term effects to the ecosystem.[13] A centerpiece of this approach is that CCAMLR makes its decisions using the best scientific evidence available,[14] which means management actions are taken with the knowledge and acceptance of inherent uncertainties. This is particularly important in remote and, at times, unreachable regions, such as the Southern Ocean; it highlights the need for and importance of effective communication between Antarctic scientists and policymakers, to avoid adverse policy outcomes.[15]

Since its establishment, CCAMLR has implemented different conservation measures, including setting catch limits, regulating bycatch, and prohibiting certain fishing methods such as bottom trawling (which heavily impacts seafloor communities).

Photo credit: Humpback whales in Antarctica: Jordi Chias | National Geographic, Binational expedition Argentina and Chile in collaboration with NatGeo Pristine Seas to the Antarctic Peninsula, February 2019

Most recently, CCAMLR has dedicated significant time and effort to adopting a circumpolar and representative system (or network) of MPAs.

CURRENT AND FUTURE THREATS CALL FOR MARINE PROTECTED AREAS

MPAs are a widely recognized area-based management strategy to enhance ecosystem health. They can reduce the cumulative impacts of stressors on ocean ecosystems, support ecological spatial connectivity, protect key habitats and biodiversity, maintain ecosystem function, and provide resilience to environmental variability and uncertainty.[16] Interestingly, they can also help rebuild overexploited fish stocks and improve overall fishery productivity.[17]

Global conservation efforts for a healthy ocean have recently focused on protecting at least 30 percent of marine biodiversity, habitats, and ecosystems by 2030 by achieving a representative and well-connected system of MPAs.[18] The 30x30 marine target, as it is called, provides an international way forward to enhance climate resiliency—that is, the capacity of an ecosystem to withstand the impacts of climate change, in which the oceans serve as a major carbon sink.[19] In particular, the polar oceans and the cryosphere (the frozen components of the Earth) play a fundamental role, as they are interconnected with other components of the climate system through the global exchange of water, heat, and carbon.[20] They are not only markedly vulnerable and already transforming because of climate change—but the polar regions, including the Southern Ocean, can also serve as global examples of multilateral and international cooperation in marine conservation and management.

Recognizing the multiple benefits of MPAs, and following global targets, in 2002 CCAMLR committed to establishing a network of MPAs in the Convention area by 2012. Since then, CCAMLR has undertaken a considerable amount of work, including organizing dedicated workshops, collecting massive amounts of data, defining priority conservation and management domains, adopting MPA guiding principles, allocating specific resources, and developing an exclusive MPA information repository. The collective efforts led to the adoption of the first CCAMLR MPA south of the South Orkney Islands (2009) and the world's largest MPA in the Ross Sea (2016), constituting milestone achievements for CCAMLR. In particular, the Ross Sea Region MPA could help pave the way for further

MPA proposals in other domains, in terms of better understanding the negotiating process and the compromises that are needed to achieve consensus, all the while considering each proposal's particularities. First introduced in 2012 by New Zealand and the United States, it took extensive negotiations with several CCAMLR members to build trust and address concerns in the technical and political arenas, resulting in endorsement by a vast majority of the CCAMLR members just a couple of years later; in the end, only two states—China and Russia—remained opposed to the Ross Sea Region MPA.[21] Consensus was finally achieved in 2016 after major compromises to the original proposal, including a reduction in the total protected area, the incorporation of a sunset clause in which the MPA duration would be set to 35 years, and the addition of a special research zone to contemplate fishing interests.[22] High-level political discussions between the foreign ministries of Russia and the United States were seen as key, and ultimately provided the means of unlocking opposition.[23] However, the two adopted CCAMLR MPAs cannot protect representative samples of the full range of biodiversity of the Antarctic marine ecosystems. Three additional MPA proposals—in East Antarctica (2012), the Weddell Sea (2016), and the Antarctic Peninsula (2018)—have been tabled and require final negotiation. Their adoption would contribute greatly to representativeness[24] supporting a healthy and productive ecosystem (Figure 1). Altogether, CCAMLR MPAs in the Convention area, adopted and proposed, would account for almost four million square kilometers of protected ocean contributing nearly 1 percent toward the 30x30 global target.

The East Antarctic MPA proposal was first introduced in 2012 by Australia, France, and the European Union, and since then it has been subjected to nearly 10 years of continuous negotiations at CCAMLR. The region is also experiencing environmental change, including the calving of glaciers, increases in precipitation and changes in sea ice that have been linked to massive breeding failures of Adélie penguins, with no chicks surviving the 2013-14 and 2016-17 breeding seasons.[25] These highly sensitive colonies, among other biodiversity features, are protected within the

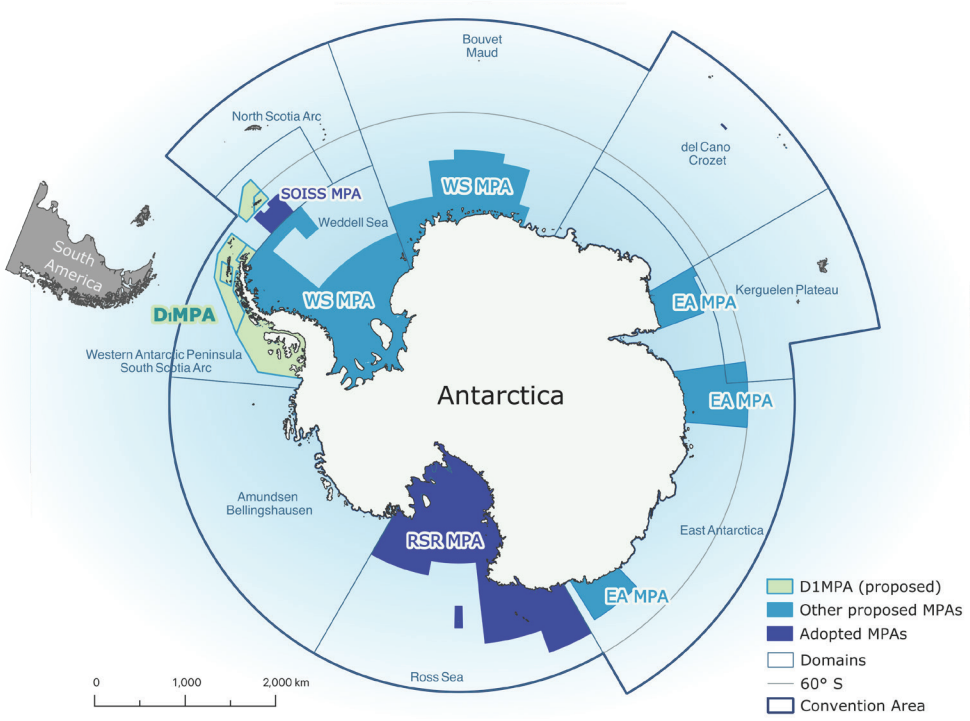

Figure 1. Marine protected areas adopted and proposed in the CCAMLR Convention area. Adopted: South Orkney Islands Southern Shelf MPA (SOISS MPA) and Ross Sea Region MPA (RSR MPA). Proposed: East Antarctica MPA (EA MPA), Weddell Sea MPA (WS MPA), and Domain 1 MPA (D1MPA). Map by Andrea Capurro.

limits of the proposed MPA, which has also been modified from its original version to accommodate various interests, including those of the fishery.[26]

The MPA proposal for the Weddell Sea was developed by Germany on behalf of the European Union and was first introduced in 2016. It also followed the CCAMLR MPA guidelines, and its scientific work was recognized at the time as the "best science currently available" by the Scientific Committee.[27] Given the sheer extension of sea ice in the Weddell Sea, the MPA proposal especially supports the region as a climate change refugium for ice-dependent species. However, consensus for its adoption has not been reached, and the original proposal was further modified based on intersessional discussions with several CCAMLR members, including the request to split the planning area in two phases due to specific concerns by Norway.[28]

Antarctic MPAs seek to protect outstanding biodiversity features that are needed across environmental and ecological gradients for comprehensiveness, adequacy, and representativeness. As such, the MPA network in the Convention Area must be of sufficient size to encompass all types of ecosystems, sustain and represent all biodiversity, and provide resilience and adaptation to climate change. However, each region is unique in its own characteristics and the potential threats it faces.

A PRIORITY AREA FOR CONSERVATION: THE ANTARCTIC PENINSULA

The Antarctic Peninsula region is one of the most productive areas of the Southern Ocean, supporting 70 percent of the circumpolar distribution of krill[29] and holding numerous biodiversity hotspots (or areas of outstanding biological value), including an abundance of whales, seals, and seabirds that mostly feed on krill.[30] However, the high productivity of the area also gives place to the largest amount of krill fishery catches.[31] During the last 20 years, these catches have increasingly concentrated in very small coastal regions during sensitive periods of breeding and feeding for krill predators. While the krill fishing industry is regulated by CCAMLR, it is precisely this concentration of fishery catches in space and time that may place excessive pressure on krill predators—and regulations that are not precautionary enough[32] may be negatively affecting these species.[33]

"Antarctic MPAs seek to protect outstanding biodiversity features that are needed across environmental and ecological gradients for comprehensiveness, adequacy, and representativeness."

Additionally, the western Antarctic Peninsula is experiencing the fastest environmental change on the continent.[34] The sea surface temperature in some coastal regions has already reached temperatures initially predicted for 2100,[35] and together with an atmosphere that has warmed nearly 3 °C since 1951, these changes have been linked to the collapse of several Antarctic ice shelves, the retreat of most glaciers, and the exposure of new terrestrial habitat.[36] In fact, the year 2020 marked a new record temperature of 18.3 °C (64.9 °F), registered during the austral summer at Argentina's Esperanza Station. These trends are leading to environmental shifts that severely impact the entire ecosystem, from seafloor communities to top predators.[37] For example, krill densities in the region have declined sharply, and the population has already shifted its distribution southward and closer to the Antarctic ice shelves.[38] Climate change is not only perturbing the krill-centered food web but also opening new fishing grounds and allowing fishing activities for longer periods, as ice (in all its forms) reduces. Moreover, current krill fishery regulations do not take into account climate change considerations, posing extra challenges for the conservation and management of the Southern Ocean.

Furthermore, this region receives more than 95 percent of all Antarctic tourism each year, which in the season before the COVID-19 pandemic consisted of more than 74,000 visitors during the austral summer, a growing trend that continues to rise.[39] CCAMLR only manages fishing activities, but it works closely with the other components of the Antarctic Treaty System, such as the Antarctic Treaty Consultative Meeting (ATCM). Currently, the ATCM is working toward developing a regulatory framework for Antarctic tourism, with the paramount objective of minimizing its potential impacts on both terrestrial and marine Antarctic ecosystems.

In short, the Antarctic Peninsula region is like no other; it is a biodiversity hotspot highly threatened by climate change and subject to increasing pressures from other human activities, and it has been identified as a priority area for conservation.[40] Additionally, it hosts numerous research stations for collaborative scientific projects involving most CCAMLR members. Compared to other places in the Southern Ocean, the region has unrivaled long-term records and spatially extensive studies providing a solid scientific foundation for MPA planning.[41]

REDUCING ADDITIONAL PRESSURES ON HIGHLY SENSITIVE COASTAL AREAS

It is now clear that the Antarctic Peninsula is an extremely sensitive region rapidly changing due to the combined effects of several factors acting at the same time. While MPAs cannot impede climate change from happening, they can certainly help in reducing additional stressors such as fishing in highly sensitive areas, which would greatly contribute to a more resilient ocean.

Krill fishing in the Southern Ocean began in the early 1970s as a multivessel multinational activity with nearly 10 active—albeit uneven—fishing states over the years.[42] Until 2000, the USSR/Russia and Japan were the two most active states fishing for krill. In the following 10 years, Norway, South Korea, and Ukraine started their own operations, and Japan took the lead as the most active krill-fishing state. From 2010 onward, Norway took over half of all krill catches, followed distantly by South Korea and China. However, changes to the fleet dynamics might happen soon, as commercial interest in krill products (mostly used to feed other animals, and to a lesser extent for omega-3 supplements) is rising and new krill fishing vessels are being built, mostly by China,[43] which could also have implications for MPA negotiations.[44]

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Over the last 20 years, the krill fishing industry has been concentrated almost exclusively in the western Antarctic Peninsula region and around the South Orkney and South Georgia islands. During this same period, new fishing technologies have allowed for a continuous extraction of krill.[45] The current catch limit is only a fraction of the estimated abundance of krill.[46] However, the main focus of alarm is on the localized effects to the ecosystem by an activity that is concentrated in just a few places that are also used by predators for feeding. For example, penguins breed and feed their chicks in colonies on land while going to sea regularly to fetch food. If food near the colony is scarce, adults may have to take longer trips or search for new foraging grounds further away, thereby spending more energy, increasing the time between feedings, and potentially risking the survival of their chicks. In a region undergoing rapid environmental change, localized competition for this resource (krill) exacerbates the pressure on predators.[47] An MPA in this region could protect these important coastal areas and would guide the krill fishery in

avoiding an excessive concentration of catches, augmenting the industry's commitment to best fishing practices for the long-term.

ARGENTINA AND CHILE'S COMMITMENT TO ANTARCTIC PROTECTION: A BINATIONAL MPA PROPOSAL

Argentina and Chile have a long and remarkable history in Antarctica. Both are original signatories of the Antarctic Treaty, they were relevant participants at the table when CCAMLR was negotiated, and they are active in all matters related to the protection of this polar region. The Antarctic Peninsula is of special interest to both states; it is a natural continuation of the Andes Mountains with deep connections to Patagonian marine ecosystems, and it sits approximately 1,000 kilometers from the ports of Ushuaia in Argentina and Punta Arenas in Chile. Additionally, both states have extensive logistical and scientific capacities in the region, with more than 100 years of experience that includes numerous science stations (13 for Argentina and nine for Chile) and other scientific facilities with multiple access routes to the continent.

By the early 2000s, CCAMLR was moving forward with MPA work undertaking circumpolar bioregionalization studies (which identify priority areas for conservation) and subdividing the Convention area into nine Planning Domains (or domains) for MPA management purposes. In 2011, given Argentina and Chile's continuous activity in the region, together they hosted an international MPA technical workshop for Domain 1 (West Antarctic Peninsula and South Scotia Arc) that was readily endorsed by the Commission[48] and would constitute the cornerstone of the binational MPA proposal. From that moment on, Argentina and Chile (the proponents) committed to the leading role for developing the Domain 1 MPA (hereafter, D1MPA, reads as "dimpa"; Figure 1). They collaboratively work with other CCAMLR members, including Australia, the European Union, Japan, Germany, Norway, the United Kingdom, and the United States. This allowed for the collection, study, analysis, and exchange of a very significant amount of information toward the identification of the most important areas deemed in need of protection, which ultimately led to the presentation of a preliminary proposal in 2017[49] and a formal D1MPA conservation measure in 2018.[50]

If adopted collectively by CCAMLR, the proposed D1MPA will protect the delicate biodiversity of the region now and in the future. Its approximately 650,000 square kilometers would safeguard a wide range of marine habitats and ecosystem processes that support areas with high productivity; krill nurseries; spawning and recruitment areas for fish (especially for those species overexploited in the past); hotspots for penguins, seals, and whales during breeding and feeding; and unique habitats such as seamounts—underwater mountains that hold diverse species and support sustainable fisheries (Figure 2). Through a combination of management strategies with and without fishing (Krill Fishery Zone and General Protection Zone, respectively; Figure 2), D1MPA allows for the rational use of marine resources and the establishment of scientific reference areas to increase our understanding of the compounding effects of fishing activities in a region fraught with environmental uncertainties. Interestingly, and in line with the Antarctic Treaty values, D1MPA will also serve the purpose of increased scientific efforts and synergies between national Antarctic programs and research fisheries (scientific information provided by the fishing activity itself), ultimately generating a multilateral research and monitoring plan.

Given the complexity of this region, in terms of natural values, anthropogenic climate change risks, and interacting human activities, Argentina and Chile underscored the importance of keeping an open dialogue and transparent approach from the beginning. Through a series of national and international workshops and intersessional correspondence, the proponents invited all member states and other stakeholders including the fishing industry and

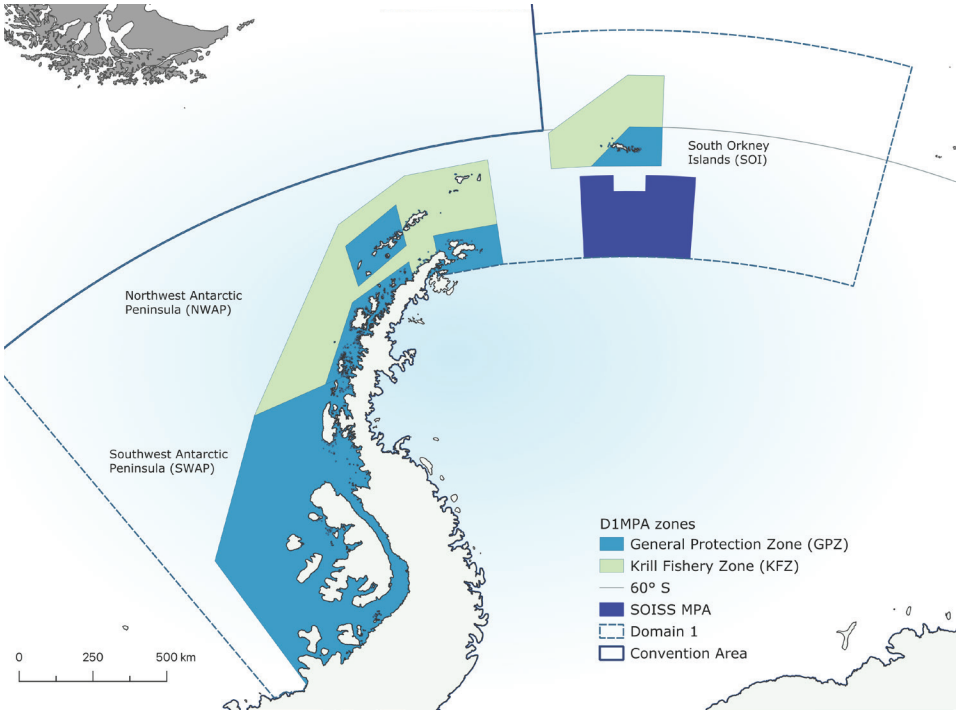

Figure 2. Proposed Domain 1 Marine Protected Area (D1MPA) including management zones. In the General Protection Zone (GPZ) fishing for krill is prohibited (no-take zones) except for research purposes. Commercial krill fishing is allowed in the Krill Fishery Zone, in accordance with other CCAMLR fishery regulations and if the activity does not interfere with D1MPA conservation objectives. SOISS MPA: South Orkney Islands Southern Shelf MPA. Map by Andrea Capurro.

nongovernmental organizations (NGOs) to participate in every stage of the process. In fact, Argentina and Chile introduced a preliminary proposal a year in advance to the formal conservation measure, to give voice to different interests. The highly collaborative, participatory, and iterative approach taken by the proponents via the engagement of multiple stakeholders increased legitimacy, saliency, and credibility, contributing to the coproduction of actionable science[51] —that is, the set of collective and joint actions that support decision-making.

STRENGTHENING NATIONAL ANTARCTIC POLICIES

The joint path undertaken since 2011 represented a great achievement for Argentina and Chile at local and international levels, proactively consolidating their commitment to protect the highly sensitive Antarctic Peninsula. Scientifically, the proposal was highlighted by many members of the international CCAMLR community as comprehensive, appropriate, accurate, and developed in an inclusive and constructive manner. The process strengthened the scientific and diplomatic institutions of each country, increased capacity-building, and allowed for the setup of dedicated teams in the science-policy interface. Additionally, it reinforced the long-standing and fruitful Antarctic cooperation between Argentina and Chile by fostering specific policy strategies in the Antarctic Peninsula region. Importantly, the two countries increased their active participation in the Antarctic and other international forums underpinning the proponents' national Antarctic policies. In fact, since 2011 Argentina and Chile have jointly submitted more than 30 official papers related to D1MPA to the meetings of the Antarctic Treaty System and a dozen more to other science conferences. In addition, this partnership supported stronger collaborative ties with other active and key member states, such as the United States and the United Kingdom, including CCAMLR research scholarships and mentoring. The importance of protecting this vulnerable region and the cooperative approach taken by Argentina and Chile was also featured in a TV documentary in

association with National Geographic Pristine Seas,[52] which was broadcasted worldwide in October 2020, increasing global awareness.

THE CHALLENGES FOR D1MPA ADOPTION

The D1MPA proposal is based on sound science and has undergone a process that is both fair and respectful of stakeholders' divergent values.[53] It has been widely supported by most CCAMLR members, including inter alia Australia, Brazil, the European Union, France, Germany, Italy, New Zealand, Spain, Sweden, South Africa, the United Kingdom, the United States, and Uruguay. In addition, various environmental NGOs were also supportive right from the initial stages of the process. However, almost 10 years after work began and almost four years since it was first tabled, consensus has not been reached and the D1MPA proposal is still under negotiation. Notably, only a few states have raised concerns, including China, Japan, Norway, South Korea, and Russia.

Reasons for not reaching consensus include, among others, the contention that the D1MPA boundaries and size are not supported by existing science, and concerns related to interference with fishing when fishing efforts are required to move outside no-take zones.[54] Japan argues that the protected area in the southwest of the Antarctic Peninsula (SWAP, Figure 2) is too large, and if closed to fisheries, it could interfere with research provided by fishing vessels. Norway's concerns relate to displaced fishing efforts and the need to accommodate the dynamic nature of the krill fishing industry. China's and Russia's main argument appears to be that there is no need for the D1MPA at all, insisting instead that there are no risks or threats to the Antarctic Peninsula that warrant an MPA, and that current conservation measures already offer sufficient protection. Therefore, D1MPA proponents would seem to need to provide evidence of threats to the marine ecosystem, including those posed by the krill fishing industry and climate change, before the conservation measure can be adopted. Moreover, China and Russia have also been pursuing the reformulation of some of the MPA guiding principles[55] that were already adopted by consensus of all CCAMLR members in 2011.

Some of these states have also raised other general concerns, most of which are shared by the proposed East Antarctica and Weddell Sea MPAs and have also been relevant for the adopted Ross Sea Region MPA, including:

Arguments that CCAMLR does not have the legal capacity to adopt MPAs or that they may be inconsistent with other international legal agreements (e.g., United Nations Convention on the Law of the Sea); implications of exclusivity where proponent states use MPAs as a tool for sovereignty; concerns about duration by requesting a sunset clause (or a time-limited validity) usually shorter than the life span of most Antarctic predators; sufficiency of research and monitoring plans including financial support from states to carry them out; adequacy or sufficiency of information specially in poor-data areas (due mostly to inaccessibility).[56] Additionally, for some states, opposition builds around the interpretation of Article II of the Convention, where conservation includes rational use, asserting that they have the right to fish and MPAs should not impose any limits on extracting activities.

Some of the arguments are contrary to the precautionary approach followed by CCAMLR and convey mistrust in scientific evidence and science-based management. Arguably, the amount of scientific information requested for MPA planning is not being required for any other conservation measure, including those that specifically regulate fisheries. While MPA proponents need to show negative fishing impacts on the ecosystem before MPAs are adopted, no studies on such impacts are required from fishing states prior to proceeding with their fishing activities. The burden of proof seems to be not only unbalanced[57] but also reversed, and CCAMLR might need to work toward reinforcing its precautionary and ecosystem approach. The vast scientific support for

Photo credit: Antarctic underwater life: Manu San Félix | National Geographic, Binational expedition Argentina and Chile in collaboration with NatGeo Pristine Seas to the Antarctic Peninsula, February 2019

D1MPA, which involved independent analysis from various states, cannot be understated. These arguments, augmented when considering the consensus for an MPA network, seem to break dialogue further apart rather than encouraging collaboratively working toward finding common ground.

The open process that Argentina and Chile have promoted, and continue to promote, includes numerous instances of multi-stakeholder engagement. The workshops, the D1MPA Expert Group (an innovative correspondence mechanism specifically designed for this purpose), the intersessional consultations, and the continuous presentation of specific documents in response to states' concerns are proof of the proponents' efforts to bring everyone on board. While Japan, Norway, and South Korea have engaged in intersessional consultations toward improving the D1MPA proposal, this level of engagement with China and Russia has proven more difficult. Neither state has participated in any D1MPA workshop or joined the Expert Group or interacted in any other intersessional consultation, despite their statements in writing and at meetings of their willingness to do so.[58] Notably, proponents of the East Antarctica and the Weddell Sea MPAs have also experienced similar difficulties. While CCAMLR official meetings constitute the policy arena where decisions are taken, time is usually limited for in-depth discussions of outstanding issues, and intersessional consultations remain a crucial and effective means of building trust and mutual understanding.

"In a multilateral system such as CCAMLR, reaching consensus requires transparency, clarity, and joint work, continuously involving all stakeholders."

Civil society has also been playing a big role by advocating for a network of MPAs in the Southern Ocean. Several conservation groups joined efforts to develop numerous international campaigns targeted at mobilizing states and leveraging public opinion,[59] including through high-level global influencers. In the particular case of D1MPA, NGOs have supported the process from the beginning by inter alia increasing capacity-building, fostering stakeholders' engagement, and helping the message reach wider global audiences.

In a multilateral system such as CCAMLR, reaching consensus requires transparency, clarity, and joint work, continuously involving all stakeholders. There is then an increasing need to build strong and

long-lasting bridges of communication, particularly with China and Russia, both at scientific and policy levels. Notably, both countries are working toward a network of MPAs in the waters within their national jurisdictions; China recently launched a scheme for a comprehensive MPA protection by 2035,[60] and Russia is strengthening its ocean protection in the Arctic Russian seas,[61] another of the regions in the world most affected by climate change. A host of different factors may prevent consensus, including economic interests, geopolitics, lack of trust, and other political tensions, some of which extend beyond Antarctic waters.[62] Sound science underpins this MPA proposal—but ultimately, political will and diplomatic negotiations are likely to be the main drivers for adopting D1MPA.

"The Antarctic Peninsula is a priority area for conservation, and adopting the D1MPA sooner rather than later can rapidly safeguard Antarctic marine biodiversity with multiple benefits today and in the future."

While scientific evidence is accumulating around the impacts of climate change in the Southern Ocean and on its biodiversity and ecosystem services (such as fisheries), CCAMLR has yet to incorporate it effectively into conservation measures. This evidence was scarce almost four decades ago when this international agreement came into force, but it is imperative now to establish stronger diplomatic bonds toward consensus. In the next few years, the member states, conservation NGOs, and industries should work together to increase political pressure and will to safeguard the waters around Antarctica, as the region is key in building global resilience to climate change. Bold actions include adopting the MPAs proposal for East Antarctica, Weddell Sea, and the Antarctic Peninsula, but also agreeing on a framework for fishery regulations that is up to date and at the level of current knowledge and circumstances, rebuilding trust in science and science-based decision-making.

CONCLUSION

In just a few months, CCAMLR's annual meeting will take place again, with this year marking the Commission's 40th anniversary. Increasing evidence points to the importance of the Southern Ocean in regulating the global climate, and MPAs can play a key role in adaptation to, and reduction of, climate risks. The momentum behind MPAs in the Antarctic is building. The United States has recently rejoined the Paris Agreement, and the European Union has taken a lead in shaping a joint strategy for the East Antarctic MPA and the Weddell Sea MPA, which New Zealand, Norway, the United States, and Uruguay have also joined as co-proponents. The presidents of both Argentina and Chile have expressed firm interest in having the proposals adopted so as to protect the region. NGOs and other independent initiatives have designed specific campaigns widely increasing awareness across the globe. These international efforts are redirecting global discussions and political agendas toward the South Pole, reemphasizing Antarctica's vital role in the Earth's climate system. Risks are high and biodiversity is losing the battle; a network of MPAs in the Southern Ocean can help build the resilience we need to face increasing pressures.

The Antarctic Peninsula is a priority area for conservation, and adopting the D1MPA sooner rather than later can rapidly safeguard Antarctic marine biodiversity with multiple benefits today and in the future. Unquestionably, this will also uphold and enhance Argentina and Chile's leadership as key players within the Antarctic Treaty System, while also underscoring their firm commitment to the protection of the Antarctic environment and the conservation of its unique and fragile marine ecosystem.

Andrea Capurro is an Argentine marine biologist and visiting research fellow at Boston University's Pardee Center for the Study of the Longer-Range Future. She is lead scientist on the proposal of a marine protected area (MPA) in the Antarctic Peninsula, an area of critical ecological and economic value that's already feeling the impacts of climate change. She helps the international body tasked with governing the Antarctic with planning for trade-offs between conserving the ecological community and the needs of people. Capurro also acts as an independent Antarctic science policy advisor to the Argentine Ministry of Foreign Affairs, interacting with diverse stakeholders and actively participating in international meetings. Capurro continues to support the designation of the Antarctic Peninsula MPA within the context of the Convention for the Conservation of Antarctic Marine Living Resources, a process that has been led by Argentina and Chile since 2012. She holds a bachelor's degree in marine biology from the University of Buenos Aires, as well as a master's degree in environmental management from the Instituto Tecnológico Buenos Aires.

NOTES

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