CHAPTER 9

Protecting the Southern Ocean Ecosystem

The Environmental Protection Agenda of Antarctic Diplomacy and Science

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On the morning of 1 March 1978, Richard Laws, the director of the British Antarctic Survey and a leading marine biologist, gave a scientific lecture describing the characteristics of the Southern Ocean ecosystem to the first session of a diplomatic conference on the conservation of Antarctica's marine living resources in Canberra, Australia. He gave his presentation to the delegations to this meeting – composed of both diplomats and scientists – in their scientific working group. These diplomats and scientists had talked about the Southern Ocean ecosystem for some time and had committed to its conservation at the 1977 Antarctic Treaty Consultative Meeting. Nonetheless, they were still seeking to understand the potential range of the concept's meaning as well as how to encapsulate its complexities in international treaty language.

The scientific concept of the ecosystem was an old one. However, until the 1970s, it had not generally been used in international diplomacy. Donald Logan, head of the British delegation and chair of the scientific working group that Laws was addressing, suggested that the diplomats tasked with fashioning a comprehensive regime would find it 'useful to know from the scientists what that term implies'.[1] Laws was a pre-eminent scientist of the Southern Ocean, having begun research there, and in Britain's Antarctic territories, in the late 1940s. He opened his lecture by defining the Antarctic marine ecosystem as:

> a volume of ocean with unique physical and chemical properties and all the living organisms within it, the structure of the communities they form, the dynamic functions and the biomass of the organisms

> and different trophic levels, and the complex interactions of species with each other and the environment.[2]

He then conveyed details of the ecosystem's trophic levels, describing the phytoplankton, zooplankton, squids and fish, whales, seals, penguins, albatrosses and petrels. He suggested two central characteristics of an ecosystem: its diversity and its stability. Maintaining both were central objectives of management. He concluded by posing the central question all conservationists faced, namely: 'What kind of an ecosystem do we wish to conserve?' Though he did not offer a specific answer, he pointed out that, for example, if all the whales were removed, there would still be an ecosystem. His challenge in making this observation was that the negotiations must 'decide what the limit of variations that can be accepted is'.[3]

The consultative parties to the Antarctic Treaty of 1959[4] met in Canberra in early 1978 to begin negotiating an agreement for the conservation of Antarctic marine living resources. The actors interested in the Antarctic aimed for collective rules at the international level, as from the late 1960s, some parties, notably the United Kingdom and the United States, became increasingly concerned about the Soviet Union's and Japan's exploitation of Antarctic krill – the main zooplankton species that supported the great bulk of the ecosystem – as well as the apparent interest of certain international organizations and developing states in exploiting these resources. The concerned parties saw two main problems, one political and one environmental. First, they wanted to preserve both order within the Antarctic Treaty regime and the exclusivity of that order by keeping other non-Treaty actors out. The second concern related to the fundamental and practical issue of managing resource exploitation on the high seas (a global commons) to a larger extent and at a different level (that is, the ecosystem) than existing fisheries agreements.

The historical experience as well as the contemporaneous pressures of science, industry and international resources law presented the Antarctic Treaty parties with two principal options for their conservation regime. On the one hand, they could view marine resources as resources to be exploited and managed, most likely through a traditional fisheries management regime. This would include viewing only individual species to be exploited at a 'maximum sustainable yield' rather than considering the ramifications of exploitation through the ecosystem, and allocating fishing quotas.[5] On the other hand, they could govern the Southern

Ocean as a fragile and simple ecosystem to be protected as a whole. Ecological ideas were central to the environmental politics of the 1970s. The concept of the ecosystem was particularly important as the environment came to be viewed as a living machine in which all its constituent parts were interconnected and existed in a particular balance. With a productive metaphorical ambiguity, this ecological discourse and these mechanistic and increasingly abstract views of ecosystems called for humans to correct their harmful actions and suggested that they could, in fact, control and manage the balance of nature.[6]

The parties agreed on a regime with both elements of a traditional fisheries regime and a novel ecosystem-level conservation standard. Signed in May 1980, the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) created a permanent international commission and codified principles to protect the whole ecosystem, manage its exploitation, and facilitate and promote scientific research.[7] From a diplomatic point of view, CCAMLR embedded the centrality of the Antarctic Treaty and therefore its parties in the management of Antarctic affairs. From a scientific and environmental point of view, Article II of the Convention was a milestone in international law, for it was the first fisheries and environmental treaty that provided for the conservation of an entire ecosystem.[8]

How did the Southern Ocean ecosystem become central to the environmental protection agenda of Antarctic science and diplomacy in the 1970s? This chapter argues that the Antarctic Treaty parties enshrined the ecosystem in CCAMLR because it allowed them collectively to insist on their responsibilities for and interests in the Antarctic region and exclude countries outside the Treaty framework. At the same time, the Scientific Committee on Antarctic Research (SCAR) – an international non-governmental scientific body with a close relationship to the Treaty parties – pushed for ecosystem conservation against resource development so that it could entrench its institutional standing, in intellectual and spatial terms, as the leading Antarctic scientific body. The Treaty parties and SCAR put the Southern Ocean ecosystem at the centre of their respective diplomatic and scientific agendas to marginalize the countervailing agendas of resource exploitation and the states and organizations associated with that view. By codifying the ecosystem, the Treaty parties constructed an enlarged and interconnected region to govern for themselves. Admittance to the regime of ecosystem protection and the region would be based on the acceptance of the obligations and geographies embedded in CCAMLR. The issue of institution

building was not simply one of creating a new institution – that is, a regional fisheries management organization – to embody, enact and defend the principles of an ecosystem protection convention. It was also about maintaining and expanding existing institutions; in this case, both SCAR and the Antarctic Treaty system itself.

By emphasizing the links between the scientific and political visions of the ecosystem, this chapter engages with what the science studies scholar Sheila Jasanoff has called the 'idiom of co-production'. She has argued that 'we gain explanatory power by thinking of natural and social orders as being produced together' and has suggested that 'the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it'.[9] Concentrating on the political side of coproduction, this chapter is alert to the ways in which the apparently objective science of the ecosystem coexisted with and encouraged a particular disposition in the very structures of scientific research and in the Antarctic diplomatic regime. We must be attentive to the politics, broadly conceived, of any act of environmental protection, not simply to the apparent quality of scientific argument and reasoning.

Antarctic Actors

The issue of the conservation of Antarctic marine living resources and the Southern Ocean ecosystem was primarily discussed within the structures of the Antarctic Treaty regime. In addition to the Antarctic Treaty, this regime also included the measures passed by the Treaty parties at their periodic consultative meetings, the text of the Convention for the Conservation of Antarctic Seals of 1972,[10] and the informal relationship between the Treaty parties as a group and SCAR.

Unlike the international organizations discussed in other chapters in this book, the Antarctic Treaty was a regime according to Stephen Krasner's definition as it had 'principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given issue-area'.[11] The regime did not have an autonomous or separate secretariat to set the agenda or develop its own expertise – agenda setting was done either by the parties or by SCAR, the closely tied international non-governmental organization (NGO) discussed below. Yet, the stability of the actors involved (states, scientific bodies and individuals), the single-issue area, and the periodic and structured meetings, combined with the fact that Antarctic issues were not always

pressing concerns for foreign policy or defence elites, allowed a limited autonomy of action on the part of the diplomats and scientists involved.

The Antarctic Treaty was negotiated in response to three developments in the postwar period. The first concerned the territorial dispute between Argentina, the United Kingdom and Chile over their overlapping claims to the Antarctic Peninsula. The United Kingdom had made claims to these lands in the early twentieth century, based, in part, on priority of discovery. In the late 1930s, Argentina and Chile made competing claims arising from nationalist and anti-colonial politics. Tensions arising from these overlapping territories came to a head in the late 1940s and early 1950s, and even included armed encounters between British and Argentine personnel. The United Kingdom's attempts to resolve these tensions through the International Court of Justice came to nothing and the tensions remained unresolved.[12]

The second major tension arose in the late 1940s with the increasing interest of the Soviet Union in the Antarctic. Before this time, the Soviet Union had not had any Antarctic interests, yet it used a whaling fleet it had received from Germany as war reparations to expand its whaling activities into the Southern Ocean during 1946–47.[13] Soon after, when the United States tried to negotiate a resolution to the Argentine–British–Chilean territorial dispute and to include the other territorial issues in 1948, the Soviet Union, in the new context of superpower rivalry and the beginning of the Cold War, insisted that it had to be part of any international agreement.[14] The Soviet Union also began a significant programme of continental exploration and scientific stations in the early 1950s.

The final development was the International Geophysical Year (IGY) of 1957–58. This was a worldwide programme of scientific research that sought to understand the earth's geophysical phenomena through concentrated, simultaneous and synoptic observations and data collection. It had a particular focus on Antarctica. The IGY brought a significant expansion of scientific activity in Antarctica from a wide variety of states, including the Soviet Union. It was interpreted at the time as signalling the power of international cooperation that could overcome or avoid suspicions and tensions.[15]

Having been eager to resolve these geopolitical tensions since the late 1940s, the United States used the IGY as a catalyst to convene a diplomatic conference of the twelve concerned states. This conference met in October and November 1959 following eighteen months of preparatory meetings in Washington DC. As originally negotiated, the

Treaty was concerned mostly with guaranteeing free and peaceful access to Antarctica for scientific research. It also prohibited military activities, nuclear explosions and the disposal of radioactive waste. To achieve this agreement, it relied on a peculiar legal formulation relating to territorial sovereignty. Article IV stated that, by signing the Treaty, those states that claimed territory were not renouncing their claims, those states with a basis of claim were not renouncing or diminishing that basis for claim, and that states were not prejudicing their recognition or nonrecognition of other states' claims or basis of claims.

The Treaty was signed by twelve states, which were divided into two main groupings. Seven of the original signatories – Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom – claimed territories in the Antarctic. For them, the Article IV compromise was crucially important. The remaining five parties – Belgium, Japan, South Africa, the Soviet Union and the United States – had longer histories of Antarctic exploration or had participated in the IGY, but they neither claimed territory nor recognized the territorial claims of the other seven parties. These twelve original signatories also constituted the 'consultative parties' – those parties with a right to participate in the periodic meetings envisaged by Article IX of the Treaty.

There are three important elements to keep in mind regarding the Antarctic Treaty in its first two decades. The first element is structure. Article IX of the Treaty envisaged that the Treaty's consultative parties would meet periodically to exchange information, consult 'on matters of common interest' and formulate, consider and recommend 'measures in furtherance of the principles and objectives of the Treaty', covering scientific research and cooperation, issues of jurisdiction and the 'preservation and conservation of living resources'. These meetings occurred roughly biennially, rotating among the parties.[16]

The second element was the settlement of territorial and sovereignty issues. Because of the different approaches to Antarctic territory – including claims, potential claims and the rejection of claims – the Treaty parties included the Article IV compromise to allow them to cooperate in the field of science. But Article IV did not solve the problem comprehensively, so new issues that arose had to be brought within the territorial compromise. This became especially important in the 1970s, when the issues of mineral resources and marine living resources arose. In a situation where the territorial claimant states had more to potentially gain from the Antarctic, the Article IV settlement had to be expanded.

The final aspect was the development of environmental issues. Slowly emerging from an abstract emphasis on science was a concentration on matters of nature conservation and resource conservation. The first major landmark of Treaty diplomacy was the Agreed Measures on the Conservation of Antarctic Fauna and Flora in 1964, which was followed by the Convention on the Conservation of Antarctic Seals in 1972. These two agreements covered highly specific, species-level issues. The Agreed Measures were pushed by biological scientists in the early 1960s in response to the harm being done to Antarctic fauna by the actions of geophysical scientists in large exploratory programmes. The Convention on the Conservation of Antarctic Seals was negotiated in response to a resurgent interest on the part of Norway in exploiting Antarctic seals for furs in the 1960s.

The principal international non-governmental organization (INGO) involved in the Antarctic Treaty regime was SCAR, mentioned above. Emerging out of the organizational structures of the IGY, SCAR was a committee of the International Council of Scientific Unions. Representatives of each of the countries participating in Antarctic research sat on it. It had a secretariat based at the Scott Polar Research Institute in Cambridge in the United Kingdom and a committee structure, with one committee for each of the main scientific disciplines.[17] There was a close relationship between the Treaty parties and SCAR – especially as scientists meeting within SCAR often combined government and university roles – but it was neither formally structured nor consistently productive. Though scientists working within SCAR had, for example, precipitated official interest in nature conservation (eventually leading to the 1964 Agreed Measures), lack of funds and a commitment to outward consensus between often conflicting scientific groups meant that it was not always ready or able to respond quickly or effectively to questions raised by the Treaty parties.

Other environmental INGOs gradually entered Antarctic affairs from the mid 1970s, though their influence and presence was relatively minor at the time.[18] The most notable development was the founding of the Antarctic and Southern Ocean Coalition (ASOC) in 1978. This was constituted by an international group of environmental NGOs, especially several national branches of Friends of the Earth and Greenpeace, several branches of the World Wildlife Fund (WWF, today the Worldwide Fund for Nature) and other groups, especially those based in Australia and the United States, along with some Western and Northern European countries. ASOC drew much of its intellectual and organizational force

from James Barnes, an American lawyer whose advocacy began in the Washington DC lobby group, the Center for Law and Social Policy. Notably, Barnes was invited to be an advising member of the U.S. delegation at the CCAMLR negotiations. Only in the 1980s and in connection with the negotiations regarding an Antarctic minerals regime did INGOs, including ASOC and Greenpeace, make an increasingly vocal and concerted effort at influencing Antarctic affairs.

Competing Approaches: Resource Development and Ecosystem Conservation

The principal cause of scientific and diplomatic interest in the Southern Ocean ecosystem was Soviet fisheries research in the Antarctic beginning in 1962. In that year, a Soviet fishing research ship trawled the Atlantic sector of the Southern Ocean for krill and fish. It was the beginning of a study to see if Antarctic marine species could be caught and consumed, what fishing gear was needed, and part of the continuing investigation of their biology and stocks.[19] The Soviets began fishing Antarctic waters because their fleets had slowly been expanding throughout the world's oceans as part of a significant enlargement of capacity. From the mid 1950s, the Soviets used the advances in shipbuilding and other technologies that emerged from the Second World War and the early Cold War to grow an industry that they believed could contribute to the Soviet economy.[20]

Antarctic krill (*Euphausia superba*) was the main species being sought. A small crustacean that grows to a length of about six centimetres, the krill live in great swarms, sometimes tens of kilometres long and wide, and tens to hundreds of metres deep. Krill is fundamental to the life of the Southern Ocean and Antarctic ecosystems, as it is the food of whales, seals, penguins and fish. The importance of krill to the Antarctic food chain can be expressed in its species biomass, which is the largest of any animal on earth. This huge biomass made it especially attractive for exploitation.[21]

During the early stages of these exploitation activities, a scientific vision of the Antarctic marine ecosystem was also developing. Scientists had known for many decades that the cold Antarctic seas were strongly demarcated from the warmer oceans to the north by a boundary called the Antarctic convergence. They had also gained a basic knowledge of the ecological relationships among the species living in this ocean.

British marine scientists led this research in the 1920s and 1930s with the '*Discovery* Investigations' in the South Atlantic Ocean. They undertook these research cruises especially to understand whale biology and ecology to support the whaling industry, but in the process also came to provide a thorough understanding of the Southern Ocean.[22] Although many British scientists remained at the forefront of this research, U.S. scientists led the new developments in the 1960s financially supported by the National Science Foundation (NSF) and the American Antarctic programme. Due to the accretion of experience with the Southern Ocean combined with major developments in regulatory approaches to ecosystems, American scientists and officials were most capable – in intellectual and infrastructural terms – of generating and disseminating research and ideas about the ecosystem. Much research in this area was conducted aboard the USNS *Eltanin*, a floating laboratory for Antarctic marine research commissioned by the NSF in 1961, covering both physical and biological oceanography. Between 1962 and 1972, it completed fifty-five cruises throughout all areas the Southern Ocean, contributing fundamental knowledge.[23]

That the United States and the Soviet Union were at the forefront of these particular approaches to the Southern Ocean is representative of postwar oceanography. In both physical and biological oceanography and marine biology, both nations deployed great efforts in studying not just the Southern Ocean, but all the world's oceans. Driven by the countervailing, though linked, demands of Cold War competition and international cooperation, the 1950s and 1960s saw enormous growth in the scale of oceanographic research. But they set out on to the waves with different perspectives and different questions.[24] While the Americans were interested in the scientific problems of ecological productivity and the movement of the sea floor, the Soviets wanted to survey fish stocks and hydrography.

By the early 1970s, then, there were two major visions for human interaction with the Southern Ocean. One saw an ecosystem in need of conservation and the other saw the exploitation potential of its marine living resources. Though there was some overlap between these visions, each of them was held by one of the superpowers, thus resonating with the geopolitical situation. Moreover, as global politics became more concerned in the 1970s with both environmental protection and economic development for developing countries, these competing visions also took on the complexities of those discussions.

Competing Scientific Agendas and Institutions: SCAR and the FAO

From the signing of the Antarctic Treaty, SCAR was a significant influence on the parties' engagement with the environment. In the 1970s, SCAR strongly influenced the ideas of ecosystem conservation that had been developing among a number of its members, particularly American and British marine biologists and oceanographers. With the growing interest in Southern Ocean fisheries, along with other political and economic developments, other international non-governmental and intergovernmental bodies began to claim a place in the research effort. The fisheries department of the Food and Agriculture Organization (FAO) was an especially important new actor in the field. They saw the Southern Ocean as a region of great untapped potential, ripe for development that it could lead. In these changing conditions, SCAR's ability to keep its dominant position in shaping the research agenda for the Antarctic and Southern Ocean was consequential for the development of an ecosystem focus for the Southern Ocean.

The initial impetus for SCAR's actions was the work in the late 1960s of the Intergovernmental Oceanographic Commission (IOC, a body within the United Nations Educational, Scientific and Cultural Organization (UNESCO)), which had established, following a Soviet initiative, a Southern Ocean Co-ordination Group.[25] The SCAR Working Group on Oceanography discussed the IOC's initiatives in September 1970 and supported moves for a comprehensive study of the Southern Ocean.[26] Eventually, in January 1972, SCAR's Executive Committee agreed with the IOC recommendations, but requested that the Working Group on Biology also offer its opinion on the research programme, specifically on krill research.[27] That SCAR scientists refused to let the IOC retain a major stake in these developments reflected the low opinion British and American oceanographers, in particular, had of the IOC. Jacob Hamblin has argued that the IOC became a site of superpower rivalry during its first decade in the 1960s, with U.S. delegations pushing for concentrated and problem-led studies of specific ocean regions, while Soviet delegations pushed for data-driven surveys of the whole 'world ocean'. Hamblin has further demonstrated the low opinion Western oceanographers had for Soviet approaches to oceanography (and science in general), seeing it as 'old-fashioned' and unconcerned with 'problem-based studies'.[28] After a decade of lacklustre scientific work, Western scientists were turning away from the IOC.

In August 1972, the Working Group on Biology established a Subcommittee on Marine Resources chaired by the leading American marine biologist and oceanographer Sayed el-Sayed. The working group was dominated by British and American scientists, including el-Sayed, Laws, Inigo Everson, George Llano, Bruce Parker and Don Siniff. Other important participants were the New Zealander George Knox, the French Jean Prevost and Jean-Claude Hureau, and the Australian Donald Tranter, with no Japanese representative and only one Soviet member, Vyacheslav A. Zemsky. Their agreed collective position (reached through consensus) at this time was quite clear: 'any future development in the exploitation of these resources [krill, *inter alia*] should be viewed in the context of the total ecosystem in which krill plays a key role'.[29]

After 1972, SCAR's position slowly shifted from providing advice based on existing research to planning new research that could provide the foundations for more comprehensive advice. The Subcommittee on Marine Resources did not meet again until May 1974, when the group basically reiterated their existing positions, with an emphasis on biological questions.[30] Following the Antarctic Treaty Consultative Meeting of June 1975, the SCAR Executive upgraded the status of the Subcommittee to a 'Group of Specialists', with el-Sayed continuing as convenor. The terms of reference for this group were developed from their existing intellectual foundations of assessing and developing the state of knowledge of the ecosystem, and additionally as the body to liaise with the Scientific Committee on Oceanographic Research, the IOC and the FAO. They also had to respond to the recommendations of the Treaty consultative meetings.[31] The change of name was at least in part politically motivated. George Hemmen, Executive Secretary of SCAR, had mooted the new designation to trumpet SCAR's greater interest in the topic and to enhance the group's influence against the various other interested bodies – the IOC, the FAO, the United Nations Environment Programme (UNEP) and others.[32] It was this Group of Specialists that pushed for concrete research plans and thus moved SCAR's position away from simply advising based on existing research to a position where new research was necessary for its position in Antarctic affairs.

The beginning of the period of new, future-oriented, research was a conference at Woods Hole in the United States in August 1976. Fifty-nine scientists met to review knowledge of Southern Ocean living resources and to propose a coordinated international scientific

programme to extend that knowledge. No Soviet scientists attended this meeting, which agreed to a proposal for a scientific study entitled 'Biological Investigations of Marine Antarctic Systems and Stocks' (BIOMASS).[33] The vision and hope for BIOMASS was substantial. The Woods Hole meeting agreed that 'the principal objective of the BIOMASS programme is to gain a deeper understanding of the structure and dynamic functioning of the Antarctic marine ecosystem as a basis for the future management of potential living resources'.[34] Understanding the ecosystem was therefore intimately linked with future potential exploitation. Krill research was certainly a substantial element of the programme, but other proposals, including ecosystem modelling and research on all members of the ecosystem, were advanced. Detailed plans for implementation were also drafted for a planned duration of the research of one decade.

The Woods Hole meeting was not, however, a simple triumph of an ecosystem-focused conservation ethic. In the dynamic political and economic situation of the 1970s, control of the research agenda for the Southern Ocean was more fraught than the outward agreement suggests. Influence even in the ostensibly objective processes of science was important. There were two broad groups present at Woods Hole: conservation-minded biologists, especially ecologists; and exploitation-oriented fisheries scientists and officials. George Llano, a biologist in the U.S. Division of Polar Programs, noted that the exploitation-oriented fisheries scientists were interested in the 'technico-economic problems of Southern Ocean fisheries'. 'Basically', Llano continued, 'the latter's principal interest was where krill swarming occurs; how large are the stocks and how much can be taken.'[35] That the BIOMASS programme should tend to favour the conservation and ecosystems approach, while still including aspects of the fisheries interests, shows that the resolution of these ideas was of some consequence. It suggests that, even in the international scientific community, an ecosystem-dominated approach was not preordained, however objective it seemed as a scientific category.

Owing to the development of a new law of the sea (which included the creation of two hundred-mile exclusive economic zones), the FAO fisheries department took an active interest in what it considered underdeveloped fisheries throughout the world. While not quite a vacuum, the lack of a regime for the Southern Ocean gave technocrats from the FAO fisheries department an opportunity to add another region to their bailiwick. Shaping the BIOMASS programme in favour of research relating directly to development and exploitation, rather than fundamental

understanding of the stocks and systems, was one way of achieving their ends. For example, Llano noted that John Gulland, a longtime FAO official and pre-eminent fisheries scientist, 'deflected the discussion from scientific questioning'.[36] Indeed, Gulland and his FAO colleagues would continue to have quite different scientific and research needs and outlooks than SCAR. In August 1978, Louis DeGoes of the U.S. National Research Council referred to Gulland and Sidney Holt as the 'FAO "Mafia"', whose intentions were to control BIOMASS planning.[37]

Gulland and his FAO colleagues were clear in their research direction as fisheries scientists working within a resource development organization. Writing to el-Sayed in September 1977, Gulland wrote of BIOMASS: 'our interest in FAO is more in developing the basis for future management than in contributing to the general understanding of the world ocean'. He went on to note that 'these of course are not independent and certainly not in conflict'. He stated that 'I think it is important to realise that extremely detailed knowledge of a resource is neither a necessary nor a sufficient condition for good management', for 'participants in exploitation must have a willingness to take appropriate action', and with that willingness, good management might be successful. Gulland wanted to know more about krill stocks and thought that krill biology and ecosystems modelling, while scientifically interesting, did not contribute to management.[38]

Within the Antarctic scientific community, there was both scientific and administrative disagreement. Mary Alice McWhinnie, a leading krill biologist based at DePaul University in Chicago, had an interesting view of this meeting and the plans emerging from it. She wondered in an impassioned letter to DeGoes in November 1976 how useful any scientific programme like BIOMASS would be in the face of a determination to fish krill on the part of the Soviet Union, Poland, West Germany and Japan, or even the United Kingdom. Indeed, by McWhinnie's account, it took everything in her and el-Sayed's power to steer the research priorities away from the development of better ways to exploit the marine resources.[39] Llano noted that 'there was tendency to drift off into discussions on tonnage and catches'.[40] In addition to these scientific issues, SCAR's Executive Secretary George Hemmen and the US polar administrator Louis DeGoes sought to create a kind of bureaucratic hegemony, building SCAR's position at the expense of other organizations.

Pursuing BIOMASS as a major international research programme and advancing the ecosystem as a whole within it was an important move to entrench SCAR more fully in Antarctic affairs. The ecosystem

was, in short, a very useful thing for SCAR scientists to emphasize in the 1970s. Yet, SCAR's ecosystem-minded scientists could only advance their position against more resource-minded colleagues in other organizations so far. What SCAR needed was for the diplomats of the Treaty parties to also take up the ecosystem position.

The Ecosystem and the Strength of the Antarctic Treaty Regime

Though there had been a sense among some Treaty party diplomats and officials as early as 1968 that the exploitation of marine living resources would be a topic for discussion at a future consultative meeting, it was not until 1975 that the matter came onto the agenda. The ecosystem was not present in this discussion, however. Instead, the discussions focused on the traditional fisheries and resource aspects of the issue.[41] The meeting's eventual recommendation did not actually mention the ecosystem, calling only for the parties to 'initiate or expand' their scientific programmes, especially to contribute 'to the development of effective measures for … conservation'.[42]

The discussions at the 1975 consultative meeting in Oslo were therefore brief. Yet, if the outward agreement seemed insubstantial, contemporaneous world events provided a crucial stimulus for carrying the discussions over. The meeting occurred weeks after news – broken by Greenpeace activists in their first anti-whaling campaign – that the Soviet whaling fleet had been operating in the North Pacific outside of quotas set by the International Whaling Commission.[43] Though the Antarctic Treaty regime did not include whales on its agenda because of the existence of the International Whaling Commission, the fate of whales suffused the tone of the meeting. The New Zealand representative implored his colleagues to 'bear in mind what has happened to the whale'.[44] Thus, the fate of individual species was already at the heart of the meeting, though not the larger ecosystem.

The mid 1970s were also the early years of the Third United Nations Law of the Sea Conference (UNCLOS), and fisheries formed an important part of these discussions. In these wider fisheries negotiations, the same two pressures – conservation and development – were also present. A U.S. memorandum of March 1975 updating President Gerald Ford on the negotiations noted that there was 'a clear trend in the Conference for broad coastal state control over fisheries'. However, this was 'subject to duty to conserve and ensure full utilisation of such

resources'.[45] The tensions between exploitation and conservation and between resources and ecosystem were manifest and difficult to escape. In these circumstances, the transition to an ecosystem approach required a major intellectual, political and legal jump.

The other main element of the UNCLOS negotiations was that it encouraged those states that had not hitherto paid any attention to Antarctica and the Southern Ocean to see it in a new light. One of the impulses for negotiating a new law of the sea was the call in 1967 by the Maltese diplomat Arvid Pardo to treat the seabed and areas beyond national sovereignty as a 'common heritage of mankind'. Any riches on the sea floor, which seemed possible in the late 1960s, should be divided among all countries, but with preference given to developing countries.[46] With the uncertainty over Antarctic sovereignties, the Treaty parties, both claimants and nonclaimants, were concerned that this new concept, and the UNCLOS negotiations after 1974, might bring new actors into what they saw as their area.

Some diplomats from the developing world did take an interest in Antarctica. Just like SCAR, the Treaty parties also had to deal with FAO interests. Between 1975 and 1978, developing states on the FAO Fisheries Committee began to talk of exploiting Antarctic fish resources. What disturbed the Treaty parties was the tenor of these interventions. Several representatives of developing countries spoke of the need of developing Antarctic marine resources 'for the benefit of all mankind'.[47] This implied, in the minds of several Treaty parties, interference with their particular relationship with the Antarctic and a threat to dismantle their Treaty. Because of the many other issues on the FAO fisheries agenda, the Antarctic did not remain there. Few of the developing nations pursued it with any vigour after 1978. Yet it is instructive to consider that, for the Treaty parties, the 'natural' boundaries of the Southern Ocean ecosystem could be used to bolster their position in the South.

At Oslo in 1975, the parties had not yet had the benefit of major SCAR interventions into the subject. By 1977, though, SCAR's moves in establishing BIOMASS, as well as the longer scientific and intellectual developments, had created a new context for the discussions of the Treaty parties at the ninth consultative meeting in London. This meeting's resolution contained a basic settlement of ideas that was to guide further negotiations. In a substantial resolution, the parties agreed to three major points: first, that they should cooperate as much as possible in scientific research, particularly through the BIOMASS programme; second, that they would observe basic interim guidelines

for living resources conservation, particularly to take care in harvesting species without 'jeopardizing the Antarctic marine ecosystem as a whole'; and, finally, that the Antarctic Treaty parties should conclude a 'definitive regime' for the conservation of marine living resources by the end of 1978, specifically including in such a regime, among other political considerations, provision 'for the effective conservation of the marine living resources of the Antarctic ecosystem as a whole', extending north of sixty degrees south latitude 'where that is necessary for the effective conservation of species of the Antarctic ecosystem'.[48]

As agreed at London, the consultative parties convened for a special consultative meeting to negotiate a convention for a definitive regime in Canberra in Australia between 27 February and 16 March 1978. Despite the outward agreement at London, though, there were still divisions between those parties who demanded a conservation agreement for the whole ecosystem and those who wanted an agreement that regulated the exploitation of marine living resources. The Soviet delegation in particular – though joined by the Japanese delegation – was the most outspoken on the need for a convention to cover and regulate exploitation. The Soviets were particularly incensed that these living resources might be left untouched. In one intervention, the delegate stated that if the resources were not utilized, 'then it is a great loss for mankind'.[49]

Yet there were many delegations willing to speak up against the Soviets. The British and Americans were the strongest opponents. Robert Brewster, the head of the U.S. delegation, implored the participants that 'everything that we have learned about the living organisms found in the Antarctic marine environment convinces us that effective conservation requires an approach which is not limited to individual species, but which treats the ecosystem as a whole'.[50] Donald Logan, head of the British delegation, was concerned that the proposed title of the convention – referring to 'marine living resources' – was misleading. Instead, it should refer to the ecosystem. When speaking to the first chairman's draft, he also protested that the conservation standards were not prominent enough in the text, 'relegating' them to Article 17. They deserved greater prominence.[51] In addition to the United States and the United Kingdom, many of the other parties were also enthusiastic for a strong conservation approach based on the ecosystem, including Australia, New Zealand, Norway, Argentina and Chile. As a result, the conservation standard eventually gained a more prominent place at the top of the second chairman's draft.

The supporters of the whole-ecosystem conservation approach believed that it was scientifically prudent, but also useful for them. The United States, for example, had obvious interests in constraining Soviet activities in the Antarctic. The spatial and discursive aspects of speaking of the ecosystem might just allow it to succeed in that policy. The claimants also hoped that such an environmental turn might help to further embed their positions in the Antarctic. At the same time, the spectre of 'Third World' interest in the Antarctic, and the associated interest of the FAO, threatened to disrupt the Antarctic Treaty regime that had provided for good relations between the parties and for productive scientific and environmental work.

The ecosystem had an uneasy place in the convention draft that emerged from the first session of the special consultative meeting. The division between those parties that wanted the convention to see marine living resources and those that wanted an ecosystem standard meant that the draft text, and its Article II, did not fulfil scientific expectations. It took further work at the second session of the special consultative meeting in Buenos Aires a few months later to embed a compromise position between conservationist and fishing positions. The final version of Article II balanced the ecosystem and resource views of the Southern Ocean. Many environmentalists and conservationists like James Barnes and the ASOC were unhappy about the article's compromise character, and many scientists, including Laws, felt it inadequate.[52] Nevertheless, the ecosystem had a prominent place in it.

Conclusion

CCAMLR was finally agreed in May 1980. Putting the ecosystem at its heart was only a first step in the process of effective environmental protection and resource management. Coming into force in 1982, the CCAMLR's first decade showed that, even though the ecosystem was at the centre of the text, there was still sustained effort required to put it at the heart of the agenda of the newly established Commission. There remain differing agendas based in the same two blocs of parties in the contemporary politics of CCAMLR: one group of parties insists that it must enact its original promise of whole-ecosystem conservation, while another group of parties argues that it must balance the needs of fisheries exploitation with conservation of fish stocks.[53] The debates and negotiations of the last few years on the establishment of marine

protected areas have seen the conservationist states – especially Australia, France, New Zealand the United States – pitted against the fishing states – particularly Russia and the Ukraine.[54]

The Southern Ocean ecosystem was not targeted for conservation and protection by the Antarctic Treaty parties because such an action was best-practice environmental protection or the most rational thing to do. The ecosystem was embedded at the centre of the environmental protection agenda of Antarctic diplomacy and science because it was central to maintaining the position of SCAR and the Treaty parties. It was central to the Antarctic scientific and political agenda because its meanings and spatiality could enhance the positions of some actors and their objectives at the expense of others. Thus, the history of CCAMLR's negotiation and the emphasis on the ecosystem demonstrates that we need to be attentive not simply to the environmental purposes of protection agendas, institutions and efforts; instead, we need to understand their political purposes, too.

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Notes

1. Transcribed from 'English, Monday 27/2/1978 – Thursday AM, 2/3/1978: Interpreter floor tapes used for the consultative meeting on Antarctica, Canberra', A10734, 2, National Archives of Australia (NAA), Sydney.
2. Ibid.
3. Ibid.
4. *United Nations Treaty Series* 402 (1961): 71–102.
5. D.H. Cushing, *The Provident Sea* (Cambridge: Cambridge University Press, 1988), Chapters 12 and 15; and Carmel Finley, *All the Fish in the Sea: Maximum Sustainable Yield and the Failure of Fisheries Management* (Chicago: University of Chicago Press, 2011). The Antarctic Treaty parties also had the long experience of international whaling treaties to consider: Mark Cioc, *The Game of Conservation: International Treaties to Protect the World's Migratory Animals* (Athens, OH: Ohio University Press, 2009), Chapter 3, 104–147.
6. Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd edn (Cambridge: Cambridge University Press, 1994); Sharon E. Kingsland, *The Evolution of American Ecology, 1890–2000* (Baltimore: Johns Hopkins University Press, 2005), Chapter 7; Chunglin Kwa, 'Representations of Nature Mediating between Ecology and Science Policy: The Case of the International Biological Programme', *Social Studies of Science* 17(3) (1987): 413–42.

7. *United Nations Treaty Series* 1329 (1983): 48–106.
8. An early and standard account of the CCAMLR negotiations is James Barnes, 'The Emerging Convention on the Conservation of Antarctic Marine Living Resources: An Attempt to Meet the New Realities of Resource Exploitation in the Southern Ocean', in *The New Nationalism and the Use of Common Spaces: Issues in Marine Pollution and the Exploitation of Antarctica*, Jonathan I. Charney (ed.) (Totowa: Allanheld, Osmun, 1982), 239–86; an early legal and political interpretation of CCAMLR is David M. Edwards and John A. Heap, 'Convention on the Conservation of Antarctic Marine Living Resources: A Commentary', *Polar Record* 20(127) (1981): 353–62.
9. Sheila Jasanoff, 'The Idiom of Co-production', in *States of Knowledge: The Co-production of Science and Social Order*, Sheila Jasanoff (ed.) (London: Routledge, 2004), 1–12, 2.
10. *United Nations Treaty Series* 1080 (1978): 176–212.
11. Stephen D. Krasner, 'Structural Causes and Regime Consequences: Regimes as Intervening Variables', *International Organization* 36(2) (1982): 185–205, 185.
12. Klaus Dodds, *Pink Ice: Britain and the South Atlantic Empire* (London: I.B. Tauris, 2002), Chapters 3–6; Adrian Howkins, 'Frozen Empires: A History of the Antarctic Sovereignty Dispute between Britain, Argentina, and Chile, 1939–1959' (Ph.D. dissertation, University of Texas, 2008).
13. Irina Gan, '"The First Practical Soviet Steps Towards Getting a Foothold in the Antarctic": The Soviet Antarctic Whaling Flotilla *Slava*', *Polar Record* 47(1) (2011): 21–28.
14. David Day, *Antarctica: A Biography* (North Sydney: Knopf, 2012), Chapter 18.
15. Peter J. Beck, *The International Politics of Antarctica* (London: Croom Helm, 1986), Chapter 3; Dian Olson Belanger, *Deep Freeze: The United States, the International Geophysical Year, and the Origins of Antarctica's Age of Science* (Boulder: University Press of Colorado, 2006); and Klaus Dodds, 'Assault on the Unknown: Geopolitics, Antarctic Science, and the International Geophysical Year (1957–8)', in *New Spaces of Exploration: Geographies of Discovery in the Twentieth Century*, Simon Naylor and James R. Ryan (eds) (London: I.B. Tauris, 2010), 148–72.
16. Beck, *International Politics of Antarctica*, 149–62.
17. David W.H. Walton, Peter D Clarkson and Colin P. Summerhayes, *Science in the Snow: Fifty Years of International Collaboration through the Scientific Committee on Antarctic Research* (Cambridge: Scientific Committee on Antarctic Research, 2011). This is a commissioned and largely celebratory history of SCAR.
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19. R.N. Burukovskiy (ed.) *Soviet Fishery Research on the Antarctic Krill* (Washington DC: Joint Publications Research Service, 1967).

20. Paul R. Josephson, *Industrialized Nature: Brute Force Technology and the Transformation of the Natural World* (Washington DC: Island Press, 2002), 200–1 and 219–25.
21. James Marr, 'The Natural History and Geography of the Antarctic Krill (*Euphausia Superba* Dana)', *Discovery Reports* XXXII (1962): 33–464; John Mauchline and Leonard R. Fisher, *The Biology of Euphausiids* (London: Academic Press, 1969).
22. Peder Roberts, *The European Antarctic: Science and Strategy in Scandinavia and the British Empire* (New York: Palgrave Macmillan, 2011), Chapter 1; D. Graham Burnett, *The Sounding of the Whale: Science & Cetaceans in the Twentieth Century* (Chicago: University of Chicago Press, 2012), Chapter 2.
23. K.G. Sandved, 'USNS *Eltanin*: Four Years of Research', *Antarctic Journal of the United States* 1(4) (1966): 164–74; G.E. Fogg, *A History of Antarctic Science* (Cambridge: Cambridge University Press, 1992), 213–41.
24. Jacob Darwin Hamblin, *Oceanographers and the Cold War: Disciples of Marine Science* (Seattle: University of Washington Press, 2005), Chapters 5–6.
25. U.S., Position Paper for International Coordination Group on the Southern Ocean, First Session, Brussels, 23–26 November 1970, Intergovernmental Oceanographic Commission, Division of Polar Programs, Central Subject Files, 1969–75, RG 307, United States National Archives, College Park (NACP).
26. *SCAR Bulletin* 39 (September 1971): 985–86.
27. *SCAR Bulletin* 40 (January 1972): 185.
28. Hamblin, *Oceanographers and the Cold War*, 201, and, more generally, 169–202.
29. *SCAR Bulletin* 43 (January 1973): 634–35.
30. *SCAR Bulletin* 49 (January 1975): 440–41.
31. *SCAR Bulletin* 51 (September 1975): 714.
32. G.E. Hemmen to R.M. Laws, 30 May 1975 and Hemmen to T. Gjelsvik, 11 June 1975, SCAR Secretariat files, Cambridge, United Kingdom (SCAR Sec.).
33. Scientific Committee on Antarctic Research et al., *Biological Investigations of Marine Antarctic Systems and Stocks (BIOMASS), Volume 1 Research Proposals* (Cambridge: Scientific Committee on Antarctic Research and Scientific Committee on Oceanic Research, 1977); *SCAR Bulletin* 55 (January 1977): 419–26.
34. Scientific Committee on Antarctic Research et al., *Biological Investigations of Marine Antarctic Systems and Stocks (BIOMASS), Volume 1 Research Proposals*, 5.
35. G.A. Llano, Memorandum, 17 September 1976, Division of Polar Programs, Records of the Program Manager for Biology and Medicine, Memorandums 1976, RG 307, NACP.
36. Ibid.
37. L. DeGoes to G.A. Knox, 11 August 1978, SCAR Sec.; Hemmen seemed equally disturbed by the prospect of FAO leadership of BIOMASS: Hemmen to DeGoes, 12 September 1978 (SCAR Sec.) and Hemmen to B.B. Parrish, 5

January 1978, 243/244/01 Vol 1, British Antarctic Survey Archives (BAS), Cambridge, United Kingdom.
38. J.A. Gulland to S.Z. el-Sayed, 6 September 1977, 243/244/01 Vol 1, BAS.
39. M.A. McWhinnie to L. DeGoes, 23 November 1976, National Science Foundation, Division of Polar Programs, Central Subject Files, 1976–87, RG 307, NACP.
40. G.A. Llano, Memorandum, 17 September 1976.
41. See J.P. Lonergan's notes on the Eighth Antarctic Treaty Consultative Meeting, B1387, 1991/688 Part 1, NAA, Hobart.
42. *Report of the Eighth Consultative Meeting, Oslo, 9–20 June 1975* (Oslo: Ministry of Foreign Affairs, 1976), Recommendation VIII–10, 40.
43. Andrew Darby, *Harpoon: Into the Heart of Whaling* (Crows Nest: Allen & Unwin, 2007), 104; Frank Zelko, *Make it a Green Peace! The Rise of Countercultural Environmentalism* (Oxford: Oxford University Press, 2013), Chapter 9; Kurkpatrick Dorsey, *Whales and Nations. Environmental Diplomacy on the High Seas* (Seattle: University of Washington Press, 2013).
44. 'Our Men in Oslo Fighting to Save the Krill', *Evening Post* (Wellington), 12 June 1975, AATJ, 7428, 11/1/9 Part 1, Archives New Zealand (ANZ), Wellington.
45. Henry Kissinger, Memorandum from the President's Assistant for National Security Affairs (Kissinger) to President Ford, Washington, Foreign Relations of the United States, Volume E–3, Documents on Global Issues, 1973–76, doc 17, https://history.state.gov/historicaldocuments/frus1969-76ve03/d17, accessed 7 July 2016.
46. United Nations General Assembly, First Committee, Official Records, 22nd Session, 1 November 1967, A/C.1/PV.1516
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48. *Report of the Ninth Consultative Meeting, London, 19 September–7 October 1977* (London: Foreign and Commonwealth Office, 1977), Recommendation IX–2, 13–16.
49. Transcribed from 'English, Monday 27/2/1978 – Thursday AM, 2/3/1978: Interpreter Floor Tapes Used for the Consultative Meeting on Antarctica, Canberra', A10734, 2, NAA, Sydney.
50. Ibid.
51. Transcribed from 'English, Thursday, 3:00pm, 2/3/1978 – Thursday 4:30pm, 9/3/1978: Interpreter Floor Tapes Used for the Consultative Meeting on Antarctica, Canberra', A10734, 4, NAA, Sydney.
52. Richard Laws, 'Difficulties and Ambiguities in the Wording of Article II', 27 March 1980, FCO 7/3836, National Archives of the United Kingdom, Kew.
53. Veronica Ward, 'Sovereignty and Ecosystem Management: Clash of Concepts and Boundaries?', in *Greening of Sovereignty in World Politics*, Karen Litfin

(ed.) (Cambridge, MA: MIT Press, 1998), 79–108, 95; 'Experiences from the Convention on Living Resources (Section 1)' in *The Antarctic Treaty System in World Politics*, Arnfinn Jørgensen-Dahl and Willy Østreng (eds) (Houndmills: Macmillan, 1991), 23–76.

54. Daniel Cressey, 'Shock as Antarctic Protection Plans Scuppered', *Nature News*, 16 July 2013, http://www.nature.com/news/shock-as-antarctic-protection-plans-scuppered-1.13401, accessed 25 May 2016; and Daniel Cressey, 'Third Time Unlucky for Antarctic Protection Bid', *Nature News*, 1 November 2013, http://www.nature.com/news/third-time-unlucky-for-antarctic-protection-bid-1.14085, accessed 25 May 2016.

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