

Kaye, Legal Approaches to Polar Fisheries Regimes: A Comparative Analysis  
**LEGAL APPROACHES TO POLAR FISHERIES REGIMES: A  
COMPARATIVE ANALYSIS OF THE CONVENTION FOR THE  
CONSERVATION OF ANTARCTIC MARINE LIVING  
RESOURCES AND THE BERING SEA  
DOUGHNUT HOLE CONVENTION**

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INTRODUCTION

This Article briefly compares the nature and content of polar fisheries regimes. It examines the content of selected international legal structures pertaining to fisheries within the polar and sub-polar seas, and then draws conclusions from the similarities and differences in approach to common problems.

Before considering the international regimes pertaining to marine living resources in the Arctic and Antarctic, it is necessary to justify that such a comparison is a valid and worthwhile exercise. A number of eminent publicists have suggested that to compare the polar regions is a misconceived exercise, and at anything beyond the most superficial level such an analysis is pointless.<sup>1</sup> Clearly, these views need to be answered if the present article is to have any claim to credibility, and so some careful evaluation of them is needed.

At a superficial level, the similarities between the two poles are relatively obvious. Both are remote from the larger centers of human activity and development; both are possessed of fragile ecological systems, with relatively short and concentrated food chains; both are subject to extreme weather conditions, and unique conditions in terms of the length of night and day throughout the year; both have large areas covered by ice for extended periods. At one level, such similarities appear to justify the pertinence of a comparison between the two regions.

The forceful response to this is voiced by Franckx, Boyle, Young and

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1. Such a view is not universally held. See, e.g., Peter J. Beck, *Entering the Age of the Polar Regions: The Arctic and Antarctic are No Longer Poles Apart*, 18 *AMBIO* 92 (1989); Donald R. Rothwell & Stuart Kaye, *Law of the Sea and the Polar Regions: Reconsidering the Traditional Norms*, 18 *MARINE POL'Y* 41 (1994); Finn Sollie, *Polar Politics: Old Games in New Territories, or New Patterns in Political Development?*, 39 *INT'L J.* 695 (1984).

Osherenko, among others.<sup>2</sup> Individually, they focus on a number of differences that diminish the effectiveness of comparing the poles. First, and most obvious are the geographical differences. The Arctic is essentially a frozen ocean surrounded by continents, whereas the Antarctic is a frozen continent surrounded by oceans. As a result, there are clear and distinct differences in the climate and habitats of the polar regions. The Antarctic, with its vast ice sheet, is generally far colder than the Arctic, and is subject to more severe weather conditions more often.<sup>3</sup> The dynamics of the oceanic ice coverage is also very different, with the sea ice in the Antarctic pulsating back and forth each year from twenty million square kilometers in winter to four million square kilometers in summer.<sup>4</sup> The variations in Arctic sea ice are far less dramatic, ranging from ten million square kilometers in winter to eight million square kilometers in summer.<sup>5</sup>

A second difference relates to the great political differences between the two regions. The Antarctic has, certainly since the signing of the Antarctic Treaty in 1959,<sup>6</sup> been a political vacuum. By virtue of Article IV of the Antarctic Treaty, the claims of various states to Antarctic territory have been "frozen." Scientific cooperation is expressly encouraged, scientific data collected is exchanged and the degree of international goodwill and concord between the states present on the continent is remarkable.<sup>7</sup> Both the testing of nuclear weapons and the storage of radioactive waste are expressly prohibited,<sup>8</sup> as are military activities and the establishment of bases.<sup>9</sup> In contrast, the Arctic was a major theater of operations during the Cold War. From the 1950s, the United States and Canada maintained the DEW line at 70° North to prevent Soviet incursions into North American airspace.<sup>10</sup> In

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2. See, e.g., Oran R. Young, 'Arctic Waters': *The Politics of Regime Formation*, 18 OCEAN DEV. & INT'L L. 101 (1987); GAIL OSHERENKO & ORAN R. YOUNG, THE AGE OF THE ARCTIC: HOT CONFLICTS AND COLD REALITIES 242-44 (1989); ERIK FRANCKX, MARITIME CLAIMS IN THE ARCTIC: CANADIAN AND RUSSIAN PERSPECTIVES 6-8 (1993) [hereinafter FRANCKX, MARITIME CLAIMS]; Erik Franckx, *Environmental Protection: An Arctic-Antarctic Comparison*, in THE ANTARCTIC ENVIRONMENT AND INTERNATIONAL LAW 109 (Joe Verhoeven et al. eds., 1992) [hereinafter Franckx, *Environmental Protection*]; Alan E. Boyle, *Remarks on Legal Regimes of the Arctic*, 82 PROC. AM. SOC. INT'L L. 323 (1988).

3. FRANCKX, MARITIME CLAIMS, *supra* note 2, at 6.

4. CHRISTOPHER C. JOYNER, ANTARCTICA AND THE LAW OF THE SEA 15-16 (1992).

5. R.G. Barry, *The Present Climate of the Arctic Ocean and Possible Past and Future States*, in THE ARCTIC SEAS 1 (Yvonne Herman ed., 1989); Louis Rey, *The Arctic Ocean: A 'Polar Mediterranean'*, in THE ARCTIC OCEAN: THE HYDROGRAPHIC ENVIRONMENT AND THE FATE OF POLLUTANTS 3, 34 (Louis Rey ed., 1982).

6. The Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71.

7. *Id.* arts. I-III. For an example of conviviality and cooperation during the height of the cold war cf. KEITH SUTER, ANTARCTICA: PRIVATE PROPERTY OR PUBLIC HERITAGE? 24-25 (1991).

8. The Antarctic Treaty, *supra* note 6, art. V.

9. *Id.* art. I.

10. The Distant Early Warning, or DEW, line was constructed and jointly operated by Canada and the United States, commencing operation in 1957. 9 ENCYCLOPEDIA AMERICANA 43 (Int'l ed. 1991).

more recent times, the two superpowers maintained fleets of nuclear-powered submarines that could operate beneath the Arctic ice. The then-USSR maintained a huge military establishment on the Kola Peninsula.<sup>11</sup> Rather than a demilitarized region, free of conventional and nuclear forces, the Arctic was a vital strategic area, where both powers deployed nuclear forces.<sup>12</sup>

A third difference is the level of human activity in the two regions. The Antarctic is devoid of any indigenous population, and has no truly permanent population. Settlements of scientists and support staff, who are usually stationed on a base for no more than eighteen months at a time, are irregularly scattered around the continent.<sup>13</sup> No industry, save for irregular tourist visits, takes place on shore.<sup>14</sup> In contrast, the Arctic possesses a significant collection of indigenous communities who do not merely live permanently in the region, but can trace such presence back to prehistoric times.<sup>15</sup> Further, the Arctic is the site of considerable industrial activity, notably on the Kola Peninsula (particularly in Murmansk), and on oil fields of the Beaufort Sea.<sup>16</sup>

The arguments are all persuasive and have some weight. Certainly the different geopolitical backgrounds of the two regions have impacted on the nature and scope of the international regimes that have formed in each of them. The influence and impact of an epistemic community<sup>17</sup> of scientists on policy in the Antarctic has not been duplicated in the Arctic. All these factors raise questions as to whether comparison is fruitful. However, it is submitted that comparison in this context is a valid exercise for the following reasons.

First, what is under consideration here are fisheries regimes in the circumpolar seas. Both the Antarctic and the Arctic possess substantial stocks of marine living resources that flourish in the sub-Arctic and sub-Antarctic waters. The ecosystems in these areas are similar, being relatively narrow

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11. Willy Østreg, *The Geostrategic Conditions of Deterrence in the Barents Sea*, in *THE SOVIET MARITIME ARCTIC* 201 (Lawson W. Brigham ed., 1991).

12. OSHERENKO & YOUNG, *supra* note 2, at 17-44, 243; *see generally* W. Harriet Critchley, *Polar Deployment of Soviet Submarines*, 39 INT'L J. 828 (1984).

13. For a list of over-wintering bases in the Antarctic see 30 POLAR RECORD 78 (1994).

14. Rising levels of tourism, however, have led to concerns that environmental safeguards for tourist activities ought to be implemented. For example, see Antarctic Treaty Consultative Party Meeting Recommendation XVI-13 entitled *Tourism and Non-Government Activities in the Antarctic Treaty Area*, reprinted in W.M. BUSH, 2 ANTARCTICA AND INTERNATIONAL LAW, Booklet AT91G 88-90 (1994).

15. These include the Inuit, the Aleut, the Sami, the groups of northern Russia associated under the Association of Small Peoples of the North.

16. OSHERENKO & YOUNG, *supra* note 2, at 45-71; Franklyn Griffiths, *The Arctic in the Russian Identity*, in *THE SOVIET MARITIME ARCTIC* 83, 83-90 (Lawson W. Brigham ed., 1991).

17. For discussions on the nature and influence of epistemic communities on regime formation and international relations see generally Peter M. Haas, *Introduction: Epistemic Communities and International Policy Coordination*, 46 INT'L ORG. 1 (1992); James K. Sebenius, *Challenging Conventional Explanations of International Cooperation: Negotiation Analysis and the Case of Epistemic Communities*, 46 INT'L ORG. 323 (1992).

and highly concentrated in a few key species.<sup>18</sup> These key species are the subject of substantial exploitation.<sup>19</sup> The degree of vulnerability of these ecosystems is not duplicated in the same fashion elsewhere in the world,<sup>20</sup> and accordingly, comparing approaches to the management and conservation of these stocks may prove worthwhile.

The political gulf between the two poles is also beginning to narrow. Relations between East and West have dramatically improved with the end of the Soviet Union, and consequently, commitment to the Arctic as a major theater of confrontation has somewhat waned. This can be charted by recent moves toward the establishment of a wide ranging environmental regime for the Arctic.<sup>21</sup> Whereas in the past, the Arctic States<sup>22</sup> had shown little interest in pursuing such objectives, there now appears to be a genuine commitment to the achievement of some level of regional cooperation. While this cooperative interest has not extended to fisheries, the change in atmosphere means that a greater range of negotiable solutions to fisheries problems are possible.<sup>23</sup> Different approaches might now be acceptable, and accordingly comparison is not beset with the pointlessness such an activity would have encountered a decade ago.

Finally, the issue of indigenous exploitation of fisheries does make the Arctic fundamentally different from the Antarctic. However, the level of indigenous exploitation of most species does not approach the level of the commercial harvest.<sup>24</sup> Where indigenous people target endangered species they have traditionally hunted, the ultimate reason for the species' precarious state may be due to commercial harvesting at an earlier time. Effective

18. See generally M.J. Dunbar, *Arctic Marine Ecosystems*, in *THE ARCTIC OCEAN: THE HYDROGRAPHIC ENVIRONMENT AND THE FATE OF POLLUTANTS* 233 (Louis Rey ed., 1982); George A. Knox, *The Living Resources of the Southern Ocean: A Scientific Overview*, in *ANTARCTIC RESOURCES POLICY: SCIENTIFIC, LEGAL AND POLITICAL ISSUES* 21 (Francisco Orrego Vicuña, ed., 1983).

19. The species concerned in the present discussion are krill in the Antarctic, and pollock in the Bering Sea.

20. For example, see R. Margalef, *Ecosystem Diversity Differences: Poles and Tropics*, in *POLAR OCEANS* 367 (M.J. Dunbar ed., 1977).

21. See Arctic Environmental Protection Strategy, June 14, 1991, 30 I.L.M. 1624 (1991). For other recent developments in this area see Donald R. Rothwell, *International Law and Protection of the Arctic Environment*, 44 INT'L & COMP. L.Q. 280 (1995); David D. Caron, *Toward an Arctic Environmental Regime*, 24 OCEAN DEV. & INT'L L. 377 (1993).

22. The parties to the Arctic Environmental Protection Strategy are the United States, Canada, Denmark (on behalf of Greenland), Iceland, Norway, Sweden, Finland, and Russia.

23. Things may even be beginning to change. Note the continuing negotiations between Norway, Russia and Iceland over the Barents Sea "loophole" in Oslo in April 1995. Interview with L. Skalova, Russian Committee on Fisheries (May 4, 1995). See generally Evelyne Meltzer, *Global Overview of Straddling and Highly Migratory Fish Stocks: The Non-Sustainable Nature of High Seas Fisheries*, 25 OCEAN DEV. & INT'L L. 255, 279-281 (1994) (discussing the "loophole").

24. This issue is discussed in Nancy C. Doubleday, *Aboriginal Subsistence Whaling: The Right of Inuit to Hunt Whales and the Implications for International Environmental Law*, 17 DENVER J. INT'L & POL'Y 373 (1989); Michael L. Chiropoulos, *Inupiat Subsistence and the Bowhead Whale: Can Indigenous Hunting Cultures Coexist with Endangered Animal Species?*, 5 COLO. J. INT'L ENV. L. & POL'Y 213 (1994).

management of fisheries is needed to control and limit commercial fishing, and this is true in both regions.<sup>25</sup> As such, comparing different approaches to effective management, and evaluating the results of such management is useful.

In order to facilitate the comparison, this Article makes two case studies. This will permit a greater level of detail than would otherwise be possible if all the regimes of the Arctic and Antarctic were examined. A more complete examination of a number of international instruments and arrangements is being undertaken as part of a larger work currently in preparation. The two case studies considered here are both significant and representative of the broader approaches to marine living resource management in the polar regions and should provide an effective context for this comparative analysis.

## I. THE ANTARCTIC

### A. Background

Since the Antarctic Treaty was concluded in 1959, a complex set of instruments, including conventions and recommendations arising from international meetings has grown up around the Treaty itself. These instruments, collectively known as the Antarctic Treaty System (ATS), have added to the range and variety of human activity subject to regulation and international cooperation.<sup>26</sup> The Antarctic Treaty itself made virtually no reference to the environment, and appeared to specifically exclude reference to the Southern Ocean surrounding the continent.<sup>27</sup> Subsequent agreement has resulted in a detailed body of international law dealing with environmental protection, human activities in Antarctica and the conservation of marine living resources, built upon the original political compromise reached in the Antarctic Treaty.<sup>28</sup>

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25. This is still the case even with indigenous harvesting in the Arctic. Note the disturbing scientific data on Narwhal and Beluga incorporated in a recent international commission report: REPORT OF THE FOURTH MEETING OF THE CANADA/GREENLAND JOINT COMMISSION ON CONSERVATION AND MANAGEMENT OF NARWHAL AND BELUGA, Pond Inlet, N.T., Canada, Aug. 25-27, 1994, at 2-8.

26. The term "Antarctic Treaty System" is now so firmly entrenched that it has been defined as "the measures in effect under [the Antarctic] Treaty, its associated separate international instruments in force and the measures in effect under those instruments." Protocol on Environmental Protection to the Antarctic Treaty, Oct. 4, 1991, art. 1, 30 ILM 1455 (1991) [hereinafter the Madrid Protocol].

27. Article VI of the Antarctic Treaty specifies the Treaty Area to be south of 60° South latitude, but that nothing in the Treaty prejudices the rights of any state with regard to the high seas in those latitudes. This appeared to limit the Treaty Area effectively to land and ice shelves, reflecting the initial view of some Treaty parties. Such a view is not sustainable today. Stuart Kaye & Donald R. Rothwell, *Australia's Antarctic Maritime Claims and Boundaries*, 26 OCEAN DEV. & INT'L L. 195, 203 (1995).

28. In addition to formal treaties within the ATS, Article IX(4) of the Antarctic Treaty permits the making of recommendations which can become binding on the Antarctic Treaty Consultative Parties (ATCPs). The best known example is the Agreed Measures for the

There are three instruments relevant to marine management in the Antarctic: the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR),<sup>29</sup> the Convention for the Conservation of Antarctic Seals,<sup>30</sup> and the 1991 Madrid Protocol on Environmental Protection.<sup>31</sup> To deal with the last first, the Madrid Protocol sets down basic principles in relation to human activity in the Antarctic environment, including the undertaking of environmental impact assessments<sup>32</sup> and the establishment of guidelines for the disposal of waste.<sup>33</sup> The principles seek to preserve the Antarctic's aesthetic and wilderness value, and indicate *inter alia* that activities in the Antarctic Treaty Area should avoid bringing about detrimental changes in either the marine environment, or the distribution, abundance or populations of species of fauna.<sup>34</sup> The Madrid Protocol embodies a "precautionary" approach to human endeavors in the region and as such, theoretically impacts upon any utilization of fisheries in the Southern Ocean south of 60° South. This impact extends only insofar as it provides a theoretical underpinning for regulation, and does not seek to describe the methods by which fishing is to take place or the permissible size of catches.<sup>35</sup> At the present time, the Protocol is not in force, but there does not seem to be any significant opposition among Antarctic Treaty States to its ultimate adoption.<sup>36</sup> Ratification is proceeding slowly with only sixteen of the requisite States having done so.<sup>37</sup>

The Antarctic Seal Convention is a specialized convention dealing wholly with certain species of seal found in the area south of 60° South.<sup>38</sup> While it is an important step in the increasing importance environmental protection

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Conservation of Antarctic Fauna and Flora, *reprinted in* W.M. BUSH, 1 ANTARCTICA AND INTERNATIONAL LAW 146-69 (1982).

29. Convention on the Conservation of Antarctic Marine Living Resources, May 20, 1980, U.K.T.S. No. 48, 19 I.L.M. 841 (1980) [hereinafter CCAMLR].

30. Convention for the Conservation of Antarctic Seals, June 1, 1972, 29 U.S.T. 441, 1080 U.N.T.S. 175 [hereinafter Antarctic Seal Convention].

31. Madrid Protocol, *supra* note 26.

32. *Id.* Annex I.

33. *Id.* Annex III.

34. *Id.* arts. II, III.

35. A brief summary of the application of a precautionary approach to fisheries management is found in S.M. GARCIA, THE PRECAUTIONARY APPROACH TO FISHERIES WITH REFERENCE TO STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS, FAO Fisheries Circular No. 871 (1994); more generally see HARALD HOHMANN, PRECAUTIONARY LEGAL DUTIES AND PRINCIPLES OF MODERN INTERNATIONAL ENVIRONMENTAL LAW (1994).

36. The last significant opposition was overcome when the United States announced it would sign the Protocol in July 1991. Maxwell Bruce, *Epilogue*, in Joe Verhoeven et al., *supra* note 1, at 175. See S.K.N. Blay, *New Trends in the Protection of the Antarctic Environment: The 1991 Madrid Protocol*, 86 AM. J. INT'L L. 377, 399 (1992).

37. This has drawn some criticism from the Antarctic and Southern Ocean Coalition (ASOC) while monitoring the Nineteenth Antarctic Treaty Consultative Party Meeting in Seoul. See ASOC, *Press Release*, May 19, 1995.

38. The Antarctic Seal Convention has the same area as the Antarctic Treaty. Antarctic Seal Convention, *supra* note 30, art. 1(1).

has come to have within the ATS, the Seal Convention is of limited utility for two reasons. First, there is some debate as to whether it was intended to apply to the Southern Ocean south of 60° South, or merely to the land and ice shelves within the Treaty Area.<sup>39</sup> Second, from a practical point of view, the Seal Convention has been a dead letter since before it entered into force. No commercial sealing has taken place in Antarctica for more than a quarter of a century, and given the high costs involved in operating in so remote a region, and the increasingly depressed and hostile state of the world fur trade, it is extremely unlikely to ever recommence.<sup>40</sup>

### B. CCAMLR—Principles & Provisions

The principal instrument relating to marine living resources is CCAMLR. It was negotiated through the 1970s, following a resolution at the ninth Antarctic Treaty Consultative Party (ATCP) meeting in London in September and October of 1977,<sup>41</sup> and a special meeting of the Consultative Parties in 1978.<sup>42</sup> The parties were brought to the negotiating table out of a concern that a lack of management in the past had been responsible for the wholesale destruction of Antarctic resources.<sup>43</sup> In the Nineteenth Century, seals were hunted to virtual extinction on most of the sub-Antarctic Islands,<sup>44</sup> and by the 1970s the seal population still had not reached its former numbers in spite of there having been no significant exploitation for over one hundred years.<sup>45</sup> Southern Ocean whale stocks had been decimated in half a century of whaling, and in the late 1960s, huge catches of Antarctic finfish around

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39. This debate focuses on interpretation of Article VI of the Antarctic Treaty. See generally Alfred Van der Essen, *The Application of the Law of the Sea to the Antarctic Continent*, in ANTARCTIC RESOURCES POLICY 231, 233 (Francisco Orrego Vicuña ed., 1983); Maria Terese Infante, *The Continental Shelf of Antarctica: Legal Implications for a Regime on Mineral Resources*, in ANTARCTIC RESOURCES POLICY, *supra*, at 253, 255-57; Judith G. Gardam, *Management Regimes for Antarctic Marine Living Resources: An Australian Perspective*, 15 MELB. U. L. REV. 279, 285 (1985); F.M. AUBURN, ANTARCTIC LAW AND POLITICS 219-20 (1982).

40. Note however reports in 1988 that the USSR had engaged in commercial sealing operations. At the review of the operation of the Seal Convention in September 1988, it was found that there was insufficient evidence to substantiate the claims, see Anne Marchal, *Convention for the Conservation of Antarctic Seals: 1988 Review of Operations*, 25 POLAR RECORD 142 (1989); Donald R. Rothwell, *Environmental Regulation in the Southern Ocean*, in THE LAW OF THE SEA IN THE ASIAN PACIFIC REGION 93, 102-03 (James Crawford & Donald R. Rothwell eds., 1995).

41. 1 BUSH, *supra* note 28, at 348-51. See also Resolution VIII-10 from the 1975 Oslo ATCP meeting, where the ATCPs began to explore the possibility of a convention. 1 BUSH, *supra* note 28, at 323-24.

42. BARBARA MITCHELL & RICHARD SANDBROOK, THE MANAGEMENT OF THE SOUTHERN OCEAN 12 (1980); David Edwards & John A. Heap, *Convention on the Conservation of Antarctic Marine Living Resources: A Commentary*, 20 POLAR RECORD 353, 354-56 (1981); Gardam, *supra* note 39, at 293-94.

43. See KARL-HERMAN KOCK, ANTARCTIC FISH AND FISHERIES 183-89 (1992) (outlining the brief bonanza and subsequent tragedy of the South Georgia fisheries).

44. G.E. FOGG, A HISTORY OF ANTARCTIC SCIENCE 38-40 (1992).

45. *Id.* at 371.

South Georgia had been shortly followed by the collapse of these fisheries.<sup>46</sup> With small commercial harvesting of krill stocks beginning to increase, there was a real fear that continued lack of regulation would lead to over-exploitation of krill. A collapse of the krill stocks, which are central to the entire Antarctic ecosystem, would impact upon all other species in the region, potentially destroying the ecology of the Southern Ocean.<sup>47</sup> Additional incentive also came from the increasing likelihood of United Nations involvement in regulating the Antarctic marine environment, something the ATCP's were committed to avoiding.<sup>48</sup> An ATS-based marine environmental convention was seen as infinitely preferable to a U.N.-sponsored instrument.<sup>49</sup>

Reflecting these concerns, it was the intention of the contracting parties to adopt a very broad ecosystem-based approach to resource conservation and this is reflected in the provisions of the CCAMLR.<sup>50</sup> To begin with, the Convention Area reflects biological realities rather than political ones. The Antarctic Treaty area extends south of 60° South,<sup>51</sup> an entirely arbitrary line that bears no relation to the range or habitats of creatures in the Southern Ocean. An environmental regime installed to conserve and manage wildlife using 60° South as its boundary would necessarily be vulnerable, as no matter how effectively it performed within its area of control, the potential for unregulated abuse of Antarctic fauna north of 60° South would still exist.

The solution was to give CCAMLR boundaries that reflected ecological realities. In the Southern Ocean, a clear divide exists where cold Antarctic waters are subducted beneath warmer more northerly waters. This divide, known as the Antarctic Convergence, is up to fifty miles wide, and a substantial temperature difference exists between the water in the north and that in the south. It remains in approximately the same location each year and forms

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46. KOCK, *supra* note 43, at 183-89.

47. See John A. Heap, *Has CCAMLR Worked? Management Policies and Ecological Needs*, in *THE ANTARCTIC TREATY SYSTEM IN WORLD POLITICS* 43, 43-49 (Arnfinn Jørgensen-Dahl & Willy Østreng eds., 1991). See also Boleslaw A. Boczek, *The Protection of the Antarctic Ecosystem: A Study in International Environmental Law*, 13 *OCEAN DEV. & INT'L L.* 347, 374-75 (1983); Edwards & Heap, *supra* note 42, at 354.

48. The FAO had shown an interest in regulating the Southern Ocean fisheries, but agreed to defer to the ATCPs. Fernando Zegers, *The Canberra Convention: Objectives and Political Aspects of its Negotiation*, in *ANTARCTIC RESOURCES POLICY* 149, 152 (Francisco Orrego Vicuña ed., 1983).

49. Cf. Matthew Howard, *The Convention on the Conservation of Antarctic Marine Living Resources: A Five Year-Review*, 38 *INT'L & COMP. L.Q.* 104, 111 (1989); PHILIP W. QUIGG, A *POLE APART* 167-68 (1983); Zegers, *supra* note 48, at 152.

50. The most detailed discussion of the factors dominant in the negotiation of CCAMLR is that of Barnes. James N. 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* 239, 242-60 (Jonathan I. Charney ed., 1982).

51. Antarctic Treaty, *supra* note 6, art VI. It has been suggested that the Antarctic Convergence was suggested as the appropriate boundary for the Treaty Area, but was rejected as too imprecise. DEBORAH SHAPLEY, *THE SEVENTH CONTINENT: ANTARCTICA IN A RESOURCE AGE* 95 (1985).



a natural barrier that separates Antarctic and sub-Antarctic species from fauna in more temperate waters. Almost no creatures cross the Convergence, with the exception of migratory whales.<sup>52</sup> As such, it formed an obvious boundary to delimit the ecology of the region, and Article I of CCAMLR sets the Convention Area as being south of the Antarctic Convergence, although specifying a deemed course<sup>53</sup> for it, to avoid confusion.<sup>54</sup>

The purposes of CCAMLR also stress an ecosystem-based approach. Article II states that the objective of the Convention is conservation of Antarctic marine living resources, and that harvesting of those resources is to take place only in accordance with named principles. These principles are: to ensure stable recruitment of stocks by never permitting stocks to fall below the level that allows maximum annual increment;<sup>55</sup> to maintain ecological relationships between harvested, dependent and related species and the restoration of depleted populations;<sup>56</sup> and the prevention or minimization of the risk of changes to the marine ecosystem not potentially reversible over two or three decades.<sup>57</sup>

These principles differ markedly from those underlying other fisheries or marine resource conventions.<sup>58</sup> Instead of focusing on a single species or class of species, the entire marine ecosystem is in issue. Further, while recognizing that Antarctic marine resources can be harvested, they provide that harvest cannot endanger the ecological relationships among all fauna in the CCAMLR Area. That this would cover non-commercially exploited species was the intention of the parties, even prior to the commencement of formal negotiations.<sup>59</sup> There was a real concern during the negotiations that what impacted upon a single species in the food chain would impact upon all species in the chain to varying degrees, and the vulnerability that this

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52. For discussions as to the nature of the Antarctic Convergence, and its impact upon sea life, see KOCK, *supra* note 43, at 4-6, 33-43; Knox, *supra* note 18, at 22-24, 26-30.

53. There may have been some political considerations taken into account in determining the precise course of the line, as it only approximates the path of the Antarctic Convergence. Ronald F. Frank, *The Convention on the Conservation of Antarctic Marine Living Resources*, 13 OCEAN DEV. & INT'L L. 291, 302 (1983).

54. Article I(4) deems the Antarctic Convergence to be a line joining the following points along the various parallels and meridians: 50°S, 0°; 50°S, 30°E; 45°S, 30°E; 45°S, 80°E; 55°S, 80°E; 55°S, 150°E; 60°S, 150°E; 60°S, 50°W; 50°S, 50°W; 50°S, 0°. CCAMLR, *supra* note 29, art. I(4). The Food and Agriculture Organization of the United Nations (FAO) has subsequently amended its statistical boundaries in the Southern Ocean, treating the CCAMLR separately from other ocean statistical areas.

55. CCAMLR, *supra* note 29, art. II(3)(a).

56. *Id.* art. II(3)(b).

57. *Id.* art. II(3)(c).

58. See WILLIAM T. BURKE, *THE NEW INTERNATIONAL LAW OF FISHERIES* 114 (1994) (noting that CCAMLR remained the only marine living resource convention based on an ecosystem management approach). See also Martin H. Belsky, *Management of Large Marine Ecosystems: Developing a New Rule of Customary International Law* 22 SAN DIEGO L. REV. 733, 761-62 (1985); Howard, *supra* note 49, at 113 (noting that such an approach is used in UNESCO's Man and the Biosphere Programme).

59. 1 BUSH, *supra* note 28, at 350.

interdependency engendered required a new approach.<sup>60</sup> There is no reference to maximum sustainable yield, as it was recognised in the 1970s by Antarctic scientists that this concept was of little utility in dealing with krill due to its central position in the food chain, and was thus inconsistent with an ecosystem-based approach.<sup>61</sup>

CCAMLR also differs from other fisheries conventions in terms of its membership. It is usual that participants in a fishery are the parties to a convention, or at the very least were former participants. CCAMLR permitted any state to sign the Convention when it was newly concluded, regardless of its interest in exploiting the Southern Ocean.<sup>62</sup> Subsequently, it remained open for accession to any state interested in harvesting or research.<sup>63</sup> This gives CCAMLR a membership of both states interested in exploitation, and those primarily interested in conservation and research, and accordingly distinguishes it from most resource management regimes.<sup>64</sup>

CCAMLR sets up a number of structures to facilitate its task of conserving marine living resources in the Southern Ocean. First it sets up a Commission, which is the body charged with the fulfillment of the objectives set out in Article II. Its membership consists of each original contracting party, and those acceding parties engaged in research or fishing interests in the Southern Ocean.<sup>65</sup>

To meet the objectives in Article II, the Commission has a range of powers. It can undertake research, collect and compile harvest data and disseminate any information collected.<sup>66</sup> More significantly, it can formulate and revise conservation measures,<sup>67</sup> analyze the effectiveness of such measures,<sup>68</sup> and implement a system of vessel observation and inspection.<sup>69</sup> Conservation measures may concern such matters as the quantity of a species that may be harvested, opening and closing of harvest seasons, regulations as to the size and age of the catch, and the gear and methods used to bring in

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60. Edwards & Heap, *supra* note 42, at 355-56.

61. FOGG, *supra* note 44, at 239.

62. CCAMLR, *supra* note 29, art. XXVI.

63. *Id.* art. XXIX(1).

64. *Id.* art. XXIX. A similar situation has evolved in the membership in the International Convention for the Regulation of Whaling, where a number of conservation-minded developing states joined the International Whaling Commission (IWC) in order to influence its voting behavior. See M.J. Peterson, *Whalers, Cetologists, Environmentalists, and the International Management of Whaling*, 46 INT'L ORG. 147, 176-79 (1992).

65. CCAMLR, *supra* note 29, art. VII. The article also permits membership of regional economic integration organizations, with the European Union (EU) (or European Economic Community as it then was) firmly in mind. To date the EU is the only member of this type.

66. *Id.* art. IX(1)(a), (b) and (c). In part, this meets the criticism of states hostile to the ATS that information about Antarctica is solely for the benefit of those states in the "Antarctic Club." Howard, *supra* note 49, at 121.

67. CCAMLR, *supra* note 29, art. IX(1)(f). The conservation measures made to date are discussed in the text accompanying notes 116-26, *infra*.

68. *Id.* art. IX(1)(e).

69. *Id.* art. IX(1)(g) & art. XXIV.

the catch.<sup>70</sup>

Decisions regarding conservation measures, or any other matter of substance before the Commission are made by consensus.<sup>71</sup> This is consistent with other ATS measures, and effectively gives any participating state a right of veto to any proposed measure.<sup>72</sup> Further, in respect of conservation measures, all states are bound to implement such measures, unless they make use of the objection procedure set down in Article IX(6). This permits an objection to a measure within ninety days of its promulgation, that will make the measure non-binding on the objecting state. Other members can use such an objection to call a meeting of the Commission to review the offending conservation measure, and further objections to the measure can be lodged at this meeting or within thirty days after it.<sup>73</sup>

CCAMLR contains no specific enforcement procedures to allow the Commission to implement its measures. The closest CCAMLR comes to an enforcement provision is Article X, which provides that the Commission can "draw to the attention" of contracting parties or third states, matters which are inimical to the principles of the Convention, or which adversely affect the implementation of it. Accordingly, the only weapon at the Commission's disposal is the embarrassment of being publicly seen as a state lacking an environmental conscience. Enforcement is left at a national level,<sup>74</sup> although states also promise to ensure that no one engages in activities contrary to the objects of CCAMLR.

The Commission is also urged to cooperate with states which exercise their jurisdiction within the Convention Area, to ensure a consistent approach to management.<sup>75</sup> In addition, non-Antarctic treaty states are obliged to comply with the Agreed Measures on the Conservation of Antarctic Flora and Fauna,<sup>76</sup> and to other recommendations adopted by the ATCPs.<sup>77</sup> Further, Article VI provides that nothing within CCAMLR is to derogate from the rights and obligations created under the Antarctic Seals Convention and the International Convention on the Regulation of Whaling.<sup>78</sup> In practice, this

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70. *Id.* art. IX(2).

71. An American proposal during the negotiations for a 2/3 majority vote was rejected. 1 BUSH, *supra* note 28, at 413; Frank, *supra* note 53, at 309-10.

72. As determining what is a matter of substance is also deemed a matter of substance, it has been expressed that states may have what amounts to a double veto, although from a practical standpoint, one veto should prove sufficient. Boczek, *supra* note 47, at 377-79.

73. CCAMLR, *supra* note 29, art. IX(6)(b), (c) and (d).

74. *Id.* art. XXI(1); states are obliged to ensure enforcement of conservation measures which are binding upon them, and to provide the Commission with data requested in relation to their activities in the CCAMLR Area. *Id.* art. XX. See also N.D. Bankes, *Environmental Protection in Antarctica: A Comment on the Convention on the Conservation of Antarctic Marine Living Resources*, 19 CAN. Y.B. INT'L L. 303, 315 (1981).

75. CCAMLR, *supra* note 29, art. XXIII.

76. Agreed Measures on the Conservation of Antarctic Flora and Fauna, June 2-13, 1965. 1 BUSH, *supra* note 28, at 146.

77. CCAMLR, *supra* note 29, art. V.

78. International Convention for the Regulation of Whaling, Dec. 2, 1946, 161 U.N.T.S. 73.

Article has resulted in the Commission taking no steps to deal with seals or whales in the Convention Area, although they are important component parts of the ecosystem.<sup>79</sup>

The second body set up by CCAMLR is the Scientific Committee. The Scientific Committee was intended to provide "a forum for consultation and cooperation concerning the collection, study and exchange of information with respect to the marine living resources to which this Convention applies."<sup>80</sup> The Committee was to provide the technical expertise and data to permit the Commission to make determinations on conservation measures, as well as to analyze and monitor the state of the ecosystem CCAMLR is obliged to protect from harm.<sup>81</sup> Each party to CCAMLR was entitled to a representative on the Committee,<sup>82</sup> and as a whole the Committee can seek the advice of other experts on an *ad hoc* basis.<sup>83</sup> Other international scientific bodies, and other Antarctic research programmes may also be consulted or taken account of by the Committee in the course of its work.<sup>84</sup>

The relationship of the Commission and the Scientific Committee is not spelled out in great detail within CCAMLR.<sup>85</sup> The Commission is clearly the superior body, and can direct the Scientific Committee to undertake any activities in pursuance of the objectives set down in Article II.<sup>86</sup> The intention of the parties was to create a permanent scientific consultancy for the Commission, to assist it in the complex task of implementing an ecosystem management approach.<sup>87</sup> Since funds provided to CCAMLR were likely to be limited, no mechanisms were set up to provide for an independent research capability for the Commission, so the Scientific Committee was the next best alternative.<sup>88</sup> It could provide a focal point for discussion among leading scientists in the field, as well as a conduit for the provision of high quality international advice. The link between the two bodies is reinforced by the fact that the Commission must publish the advice of the Scientific Committee,<sup>89</sup> and is expressly obliged to "take full account"

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79. It seems likely this effect was the one intended by the parties when Article VI of CCAMLR was drafted. Edwards & Heap, *supra* note 42, at 361.

80. CCAMLR, *supra* note 29, art. XV(1).

81. *Id.* art. XV.

82. *Id.* art. XIV(2); this provision ultimately was responsible for a difference of opinion between some of the parties as to the nature of the Scientific Council.

83. *Id.* art. XIV(3).

84. *Id.* art. XV(3).

85. Ironically, the delegates at the CCAMLR negotiations spent a great deal of time debating the relationship. Edwards & Heap, *supra* note 42, at 357.

86. CCAMLR, *supra* note 29, art. XV(2).

87. *Id.* art. XIV(1); see JOYNER, *supra* note 4, at 233.

88. *Cf.* Antarctic Seal Convention, *supra* note 30, art. V (the Antarctic Seal Convention makes use of the Scientific Committee on Antarctic Research rather than setting up its own body).

89. CCAMLR, *supra* note 29, art. IX(1)(d).

of the advice and recommendations coming from it.<sup>90</sup>

Another unusual feature of CCAMLR is the level to which it encourages the participation of nongovernmental organizations (NGOs) and intergovernmental organizations (IGOs). Article XXIII provides that the organs of CCAMLR will cooperate with the ATCPs and the FAO and "other Specialized Agencies."<sup>91</sup> It also instructs the Commission and the Scientific Committee to develop relationships with the Scientific Committee on Antarctic Research (SCAR), the IWC, the Scientific Committee on Oceanic Research (SCOR) and any other organisation that is considered appropriate.<sup>92</sup> Formal agreements can be entered into, and there is provision for observers from the organizations to be admitted to CCAMLR meetings.<sup>93</sup>

A final point is that any state engaged in research or fishing in the Southern Ocean might accede to CCAMLR, regardless of its status in relation to the Antarctic Treaty.<sup>94</sup> As such, states which are not parties to the Antarctic Treaty, or may not be ATCPs, may be parties to CCAMLR. However, to preserve the political compromise that underlies the Antarctic Treaty, all parties to CCAMLR agree to the same bifocal approach to Antarctic sovereignty set down in Article IV of the Antarctic Treaty.<sup>95</sup>

### C. CCAMLR in Action

While few dispute the merits of the principles behind CCAMLR, some publicists have questioned whether they can ever be effectively achieved.<sup>96</sup> CCAMLR has been in operation for a period in excess of ten years, and this should be a sufficient period of time to make a reasonable assessment of its performance.

The early efforts of CCAMLR would suggest that the fears of those critical of its structure were justified. Until 1991, no conservation measures were adopted in relation to krill, even though it is arguable that the protection

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90. *Id.* art. IX(4); see Edwards & Heap, *supra* note 42, at 357.

91. CCAMLR, *supra* note 29, art. XXIII(2).

92. *Id.* art. XXIII(3); see Daniel Vignes, *La Convention sur la Conservation de la Faune et de la Flore Marines de l'Antarctique*, 26 ANN. FR. D. INT'L 741, 756 (1980).

93. CCAMLR, *supra* note 29, art. XXIII(4). The provision has been utilized when ASOC, an umbrella environmental NGO incorporating a range of NGOs with Antarctic interests, was granted observer status in 1988.

94. *Id.* art. XXIX(1). That the states parties do not have to be parties to the Antarctic Treaty is confirmed by art. III of CCAMLR.

95. G.D. Triggs, *The Antarctic Treaty Regime: A Workable Compromise or a "Purgatory of Ambiguity"?*, 17 CASE W. RES. J. INT'L L. 195, 202-03 (1985); AUBURN, *supra* note 39, at 221; Benedetto Conforti, *Territorial Claims in Antarctica: A Modern Way to Deal with an Old Problem*, 19 CORNELL INT'L L.J. 249, 250-51 (1986); Gardam, *supra* note 39, at 285, 299; Christopher C. Joyner, *The Exclusive Economic Zone and Antarctica: The Dilemmas of Non-Sovereign Jurisdiction*, 19 OCEAN DEV. & INT'L L. 469, 483 (1988).

96. See Boczek, *supra* note 47, at 380-81; see also BURKE, *supra* note 58, at 114-15.

of krill was the *raison d'être* of CCAMLR in the first place.<sup>97</sup> The use of consensus in decision-making effectively stymied any attempts at protection because krill-fishing states, most notably the USSR and Japan, objected to conservation measures being imposed.<sup>98</sup> These states pointed to the lack of scientific data on the Southern Ocean to indicate there was no justification for the imposition of quotas or other restrictions.<sup>99</sup> The failure of consensus was most evident in the meetings of the Scientific Committee. From the first, there was a major difference in opinion between the USSR on the one hand, and Britain, the United States and Australia on the other, as to the role of the Scientific Committee. The Soviet Union saw it as a political forum, where each state nominated a member of its own scientific community to represent its interests.<sup>100</sup> The Western States perceived the Committee as a focal point for an epistemic community of scientists who would provide the Commission with objective advice on the ecosystem within the CCAMLR treaty area.<sup>101</sup> This difference of opinion effectively stymied the work of the Committee for some time.<sup>102</sup>

Although the initial difficulties surrounding CCAMLR have diminished over time, significant questions remain over the operation of CCAMLR, mostly in relation to its ecosystem-based approach. The Commission has no independent data gathering capability, and has been compelled to rely upon the parties, particularly those involved in fishing, for information about the ecosystem it has to manage. The lack of long term data on the various fisheries, and the recurrent difficulties in the creation of an effective data bank on marine life in the Southern Ocean are a matter of grave concern, as a detailed data store is essential to an ecosystem-based approach.<sup>103</sup> Without being aware of the nature of all the interactions within the system, the CCAMLR Commission is in no position to determine what measures might be effective to fulfil its objectives. Some have argued that by its very nature an ecosystem-based approach is impossibly complex and impractical to achieve, and that if it cannot be successfully used in the Antarctic where

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97. The first recommendation relating to krill was Conservation Measure 32/X (1991). This applied only to krill in Area 48 (Atlantic sector). Conservation Measures 45/XI (1992) and 46/XI (1992) extend catch limits for the area's krill which are currently being exploited within the CCAMLR area.

98. JOYNER, *supra* note 4, at 234.

99. Similar arguments were made by the USSR and Japan in the 1960s when the IWC sought to impose more stringent quotas on whaling. Steinar Andresen, *Science and Politics in the International Management of Whales*, 13 MARINE POL'Y 99, 105 (1989).

100. Francisco Orrego Vicuña, *The Effectiveness of the Decision-Making Machinery of CCAMLR: An Assessment*, in THE ANTARCTIC TREATY SYSTEM IN WORLD POLITICS 25, 30-31 (Arnfinn Jørgensen-Dahl & Willy Østreg eds., 1991).

101. *Id.* at 30-31.

102. Howard, *supra* note 49, at 117-20.

103. *Id.* at 124-28.

the fisheries are of a relatively low intensity, it is of little utility anywhere.<sup>104</sup>

The Commission's response has been to "soft pedal" the use of the ecosystem approach, and look at the management of individual species in individual areas.<sup>105</sup> This has drawn criticism from Australia and New Zealand, with the former formally expressing its disgust at the abandonment of the principles set down in Article II.<sup>106</sup> The Commission has also evinced great reluctance to make hard decisions. The use of a consensus decision-making system has a tendency to produce weaker measures, to ensure that they are acceptable to all parties. An example of this is the installation of an overall management system. It took more than four years to reach agreement that efforts should be made to put together a complete management system, and the final proposal was a far less substantial document than the original draft submitted to the Commission.<sup>107</sup> A system of inspection pursuant to Article XXIV was only introduced for the 1989/90 season.<sup>108</sup>

Amid all this doom and gloom, there are positive signals coming from CCAMLR. For example, within the CCAMLR Commission there is far less use of the objection procedure to protest conservation measures than there is in other equivalent fisheries bodies where it is possible to use such protest to make the measures inapplicable. The reasons for this are almost certainly found in the use of consensus decision making procedure as opposed to majority rule. The requirement of consensus ensures that all decisions have achieved a level of acceptability with all parties concerned. The decisions made may be weaker, but they are generally accepted by all, compared to strong decisions, which may be ignored by those most affected by them.<sup>109</sup>

Also pleasing has been the evolution of the Scientific Committee. In contrast to the earlier years where the Committee was racked with internal dissension, it has melded into a useful and forceful body.<sup>110</sup> The Scientific Committee has ultimately grown into something that resembles the original vision. At times the Scientific Committee has prodded the Commission into directing the Committee to use its energies towards particular research

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104. See BURKE, *supra* note 58, at 114-15. See also MITCHELL & SANDBROOK, *supra* note 42, at 48 (indicating that an ecosystem model is inconsistent with seeking an optimal yield from individual stocks).

105. See Howard, *supra* note 49, at 135-38; KOCK, *supra* note 43, at 259.

106. Closing statement to CCAMLR-IV (1985), *reprinted in* Howard, *supra* note 49, at 135.

107. Orrego Vicuña, *supra* note 100, at 30-31.

108. JOYNER, *supra* note 4, at 245-46.

109. An excellent example is the resolutions made by the North Atlantic Fisheries Organization, which are often quite harsh, and consequently the subject of protest by states, most notably the EU.

110. This would seem to be the view of Orrego Vicuña. Orrego Vicuña, *supra* note 100, at 36; Joyner has also recognized that there has been a significant improvement in CCAMLR's operation. JOYNER, *supra* note 4, at 238.

tasks.<sup>111</sup> A system of working groups has been set up within the Committee, tendering advice on specific supplied terms of reference.<sup>112</sup> These meet between full Committee annual events, and, in the opinion of Howard, have proved most effective.<sup>113</sup> Useful links have been established with a variety of international organizations. At Committee and Commission levels, connections have been made to SCAR, SCOR, FAO, IWC, the International Oceanographic Commission (IOC) and the International Union for the Conservation of Natural Resources (IUCN).<sup>114</sup> Further, in 1988 the Commission approved observer status to an environmental NGO, the Antarctic and Southern Ocean Coalition (ASOC).<sup>115</sup> Aside from increasing the range of inputs the Commission can receive in making its decisions, this gives CCAMLR at the very least the appearance of a wider degree of accountability and greater legitimacy than other equivalent bodies.

There has also been a marked shift in the role of the Commission. Out of its first seven meetings, CCAMLR succeeded in producing only 12 Conservation Measures.<sup>116</sup> Further, these all related to finfish stocks in the vicinity of South Georgia that were by and large no longer commercially viable and thus the Conservation Measures pertaining to them were uncontenious.<sup>117</sup> Since 1989, there have been seventy-seven Conservation Measures created or amended—over a 600 percent increase for the same period prior to 1989.<sup>118</sup> Further, rather than just dealing with finfish in one specific area, the Conservation Measures cover a range of matters, including krill throughout the Convention Area, catch data reporting systems, finfish catch limits and restricted fisheries, sea bird protection, net mesh sizes, and permissible by-catch levels.<sup>119</sup>

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111. Orrego Vicuña, *supra* note 100, at 32-33.

112. Howard, *supra* note 49, at 120.

113. *Id.* at 120.

114. Powell suggests a degree of self interest on the part of these organizations may have helped to forge these links allowing the Commission access to their fisheries data. D.L. Powell, *Scientific and Economic Considerations Relating to the Conservation of Marine Living Resources in Antarctica*, in ANTARCTIC RESOURCES POLICY 111, 112 (Francisco Orrego Vicuña ed., 1983); see also Howard, *supra* note 49, at 122.

115. This occurred at CCAMLR-VII. Orrego Vicuña, *supra* note 100, at 35. It was not without some difficulty that the invitation to join was finally made. A neat summary of the trials and tribulations of ASOC's efforts to participate can be found in Howard, *supra* note 49, at 146-48.

116. See Graph 1.

117. See KOCK, *supra* note 43, at 231-36.

118. See Graph 1. Joyner has the change of attitude occurring since 1987, although simply looking at the graph, the change appears to take place two to three years later. The time of the change is not so important as the fact that it took place. See JOYNER, *supra* note 4, at 238.

119. For example, Conservation Measures 32/X (1991) and 45/XI (1992) dealing with krill; 25/IX (1990), 36/X (1991) and 54/XI (1992) dealing with catch reporting systems; 38/X (1991), 49/XI (1992), 67/XII (1993) and 80/XIII (1994) setting catch limits; 29/X (1991), 29/XII (1993) and 29/XIII (1994) dealing with seabird mortality; 2/III (1984) and 19/IX (1990) dealing with net mesh sizes; and 50/XI (1992) and 68/XII (1993) dealing with by-catch limits. These are merely examples and are by no means exhaustive of the Conservation Measures on these subjects.



Two types of new Conservation Measures are worth individual discussion. First, Conservation Measure 31/X deals with exploratory fisheries. It requires that States who wish to initiate activity in a fishing ground must first notify the Commission of their intention, and accompany that notification with scientific data on the fishery itself and on dependent and associated species. No action in the fishery can take place until this data is provided and the Commission has reviewed the situation, with recommendations of the Scientific Committee. This ensures that no fishing can take place until at least the ramifications of such action have been weighed up and discussed. Conservation Measure 65/XII supplements 31/X by ensuring a high level of monitoring and that the restriction of increased activity is maintained. If a state fails to submit all the required data, it is automatically prohibited from fishing in treaty waters.<sup>120</sup> Such stringent requirements for new fisheries indicate a strong commitment to a precautionary approach to stock management, and ensure that the Commission can take steps even before exploitation takes place.<sup>121</sup>

The second series of notable Conservation Measures, those dealing with ecosystem protection, are unusual for a marine living resource convention. The CCAMLR Commission has introduced controls that are purely interested in protecting particular areas and species, without reference to their commercial value. It set up the CCAMLR Ecosystem Monitoring Program (CEMP) and has implemented special site management plans in the vicinity of Cape Shirreff on Livingston Island<sup>122</sup> and at Seal Islands<sup>123</sup> in the South Shetlands, to ensure that the scientific research there goes undisturbed. Sealing off part of a fishery just to conduct research demonstrates a strong commitment to improving data collection within the CCAMLR area.

Similar initiative can be seen in the imposition of controls designed to limit seabird mortality in fishing within the CCAMLR area. There has been increasing concern that longline fishing has had a detrimental affect on albatross populations, and a number of Conservation Measures have sought to alleviate this problem.<sup>124</sup> Vessels are required when conducting operations to: sink longline hooks baited with thawed bait, use a streamer line to discourage birds, only set lines at night, and use a minimum of ship's

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120. Conservation Measure 65/XII, para. 2(v) (1993).

121. These measures have been applied to an exploratory crab fishery. The United States approached the Commission in 1991, and subsequent approval permitted harvesting. See CCAMLR, *Eleventh Meeting of the Commission, Oct. 26, 1992 - Nov. 6, 1992*, at 27-28; see also Conservation Measures 60/XI (1992), 74/XII (1993), 75/XII (1993) and 79/XIII (1994).

122. See Conservation Measures 18/IX (1990) and 82/XIII (1994), as well as Resolution 11/XIII (1994) relating to the Cape Shirreff CEMP Protected Area. Resolution 11/XIII asked members of the Commission to comply with management arrangements on a voluntary basis until Conservation Measure 82/XIII (1994) commenced on May 1, 1995.

123. Conservation Measure 62/XI (1992), building on Resolution 8/X (1991).

124. Conservation Measures 29/X (1991), modified by 29/XI (1992), 29/XII (1993) and 29/XIII (1994).

lights.<sup>125</sup> Vessels are also prohibited from dumping trash or offal during longline operations.<sup>126</sup> Efforts to ensure compliance within and outside the CCAMLR area also show that the Commission, at least in recent times, is determined to meet its objectives set down in Article II.<sup>127</sup>

While CCAMLR was slow to achieve a notable measure of cooperation, it seems that cooperative effort is now present.<sup>128</sup> Recent publicists<sup>129</sup> have an essential positive outlook for CCAMLR, and there are sound reasons for this. The increasing international awareness of environmental issues, the rise of notions of sustainable development and the precautionary principle, and the increasing goodwill and cooperative spirit of the parties bode well for CCAMLR. International law is coming to embrace the principles which CCAMLR embodies, and even states hostile to the ATS are compelled to recognize the environmental record, and the approach used within the ATS is an example to the rest of the international community.<sup>130</sup> As such, if the trend towards environmental responsibility continues, then the likelihood of increasing cooperative effort within CCAMLR increases. This suggests an increasing level of effectiveness for the Commission in the future.<sup>131</sup>

Cooperation and a lack of discord are all measures of success based on function and activity, but success may also be measured on a more objective plane. Ultimately, CCAMLR's function is to meet its objectives in conserving the Antarctic environment, and accordingly estimation of the size and status of key Antarctic species is one way of judging the success or failure of the regime. CCAMLR's performance can therefore be judged in relation to the pressure upon Antarctic marine living resources and the impact of

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125. *Id.*

126. *Id.*

127. Similar environmentally conscious provisions can be found in limits on mesh size, although these have a more commercial orientation. See Conservation Measure 2/III (1984) (pertaining to mesh sizes for various Antarctic finfish species); Conservation Measure 4/V (1986) (pertaining to methods of determining mesh size, and to net gauge).

128. An excellent example of this comes from the discussion in relation to Conservation Measure 55/XI (1992). There was substantial disagreement between the parties—particularly Chile and Russia over the catch and number of vessels taking *Dissostichus eleginoides*. Rather than have no measure, there was a great deal of hurried negotiation and compromise which ultimately produced Conservation Measure 55/XI (1992). Both Chile and Russia made a point of expressly thanking all the delegations who assisted on reaching an acceptable solution. CCAMLR, *supra* note 121, at 24-26. In 1993, the limit for the catch was again reduced, without any disharmony being evident in the decision. CCAMLR, *Report of the Thirteenth Meeting of the Commission, Oct. 26, 1994 - Nov. 4, 1994*, at 26.

129. See Orrego Vicuña, *supra* note 100. See also Heap, *supra* note 47. Qualified support also comes from EMMILIO J. SAHURIE, *THE INTERNATIONAL LAW OF ANTARCTICA* 537 (1992).

130. This is borne out by an apparent moderation of the United Nations General Assembly's stance toward the ATS, and its praise of the environmental safeguards introduced under it. See Peter J. Beck, *The United Nations and Antarctica, 1992: Still Searching for that Elusive Convergence of View*, 29 POLAR RECORD 313 (1993).

131. A good example of this can be seen in the statements of the Chilean delegation in 1994 at CCAMLR-XIII endorsing a precautionary approach, and noting that environmental controls going beyond the letter of the various ATS instruments would arise in time. CCAMLR, *supra* note 128, at 23-24.

CCAMLR's conservation measures.

The principal exploited resource in the CCAMLR area is krill.<sup>132</sup> CCAMLR has only sought to regulate the krill harvest since 1991, when a catch limit of 1.5 million metric tonnes was set.<sup>133</sup> Exploitation has never approached this level, as Table I on the next page shows:

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132. KOCK, *supra* note 43, at 191.

133. For the Atlantic sector only, Conservation Measure 32/X (1991).

TABLE I  
 Krill Catch in CCAMLR Treaty Area  
 (figures in metric tonnes)<sup>134</sup>

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
CCAMLR Area Total	0	0	59	19,785	44,029	5,635	91,516	132,349	333,128	477,028	448,132

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Atlantic Region	373,586	138,361	104,608	180,807	425,871	346,504	364,173	394,482	344,445	231,225	296,200	82,965	82,919
Indian Region	147,978	79,645	22,897	5,932	15,910	29,557	6,490	217	29,753	1,329	-	5,812	899
Pacific Region	6,637	10,637	641	4,721	3,892	394	-	-	658	3	50	-	-
CCAMLR Area Total	528,201	228,643	128,218	191,460	445,973	376,455	370,663	395,059	374,856	232,557	296,250	88,777	83,818

<sup>134</sup> Compiled from FAO, 74 FAO Y.B. FISHERIES STATISTICS: CATCHES AND LANDINGS 385 (1992); CCAMLR, Report of the Fifth Meeting of the Scientific Committee, Sept. 8, 1986—Sept. 15, 1986, at 209; CCAMLR, Report of the Thirteenth Meeting of the Scientific Committee, Oct. 24, 1994—Oct. 28, 1994, at 26.

These figures merely show that the krill harvest was greater than before the introduction of CCAMLR in 1981, and after rallying in the late-1980s, is suffering a decline. Certainly, at no stage has the catch ever approached the 1.5 million metric tonne limit imposed by CCAMLR,<sup>134</sup> and if estimates of the krill biomass and levels of recruitment are correct, the stock is in no danger.<sup>135</sup>

Whether CCAMLR is responsible for this state of affairs is debatable. No action by the Commission has acted as a disincentive to harvest krill, although it is possible to say that mere existence of CCAMLR itself might be enough. This would be supported by the sharp decline in the harvest from 1982, prior to the first meeting of the Commission,<sup>136</sup> and 1983. On the other hand, other more credible factors might be called in to explain the lack of growth of the krill harvest.

First, Russian vessels have historically taken the bulk of the catch,<sup>137</sup> and since the break-up of the Soviet Union, and the accompanying economic dislocation, the size of the Russian fishing fleet has declined.<sup>138</sup> This, in turn, is reflected in a drop in the figures, at least since 1990. Second, international demand for krill is limited. Except in Asia and Russia, attempts to sell krill as food for humans have met with little success.<sup>139</sup> It certainly is useful as an animal food supplement, but given the remoteness of the waters in which it is found and the fact that krill is extremely susceptible to spoiling soon after being caught, krill has not attracted huge fleets of vessels.<sup>140</sup>

Most vessels fishing in the Southern Ocean for krill, at least in the 1970s and 1980s did so as a backstop for the finfish harvest. If the finfish catch

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134. *Id.* See also Conservation Measures 45/XI (1992) and 46/XI (1992) which breakdown the 1.5 million tonne limit by region and sub-region.

135. This is not entirely certain, nor is even a small quota free of potential damage to other species within the ecosystem. Krill swarming behavior means that dependent species can be drastically affected if swarms do not form in particular areas. Note the recent dramatic effects on the Bechervaise Island penguin colony in an area that had not seen krill harvesting for five years. See Andrew Darby, *Penguin Chicks Dying Off*, SYDNEY MORNING HERALD, Jan. 19, 1995, at 6.

136. The CCAMLR Commission first met from May 25, 1982 to June 11, 1982 in Hobart, Tasmania.

137. KOCK, *supra* note 43, at 183, 192.

138. This is most evident in the catch statistics for krill taken by Russian vessels between 1991 and 1994. In 1991, the USSR took 275,495 metric tonnes of krill, while in 1994, Russian vessels took 965 tonnes, and Ukrainian vessels took 8,708 tonnes. CCAMLR, *supra* note 128, at 26.

139. Except in Asia, where krill are considered a delicacy, there is little market for krill for human consumption. The only large scale processing for humans was the production of a coagulate paste made out of pulverized krill. This paste was heavily marketed in the USSR, but suffered from quality problems depending on the size and differing grades of the krill used. E. Budzinski et al., *Possibilities of Processing and Marketing of Products Made From Antarctic Krill*, FAO FISHERIES TECHNICAL PAPER NO. 268 (FAO, Rome), 1985, at 10-13.

140. The shelf life of frozen krill at -18°C is only three months, and is difficult to process for a variety of reasons, including its size, quality variability, and loss of nutrients during the peeling process. *Id.* at 6-11.

was good, they did not go after krill, whereas if it was poor, costs could be offset by a good krill catch.<sup>141</sup> In fact, the variability of the Soviet finfish catch between 1982 and 1983, and difficulties in krill processing are a more realistic explanation for the changes in size of the krill harvest in the early to mid-1980s.<sup>142</sup>

It may be possible therefore to get a better idea of CCAMLR's effectiveness from the statistics on finfish in its area. These species have been the subject of the bulk of CCAMLR's conservation measures, and evidence as to the state of the fishery may be useful to determine the success or failure of CCAMLR management.

Several species of finfish have been commercially exploited in Southern Ocean waters, including the marbled rockcod (*Notothenia rossii*) and the mackerel icefish (*Champsocephalus gunnari*).<sup>143</sup> Vast quantities of these stocks were taken in the early to mid-1970s, and their decline can be dramatically illustrated in Graphs II and III.

The first Conservation Measures introduced by CCAMLR were directed essentially at these fisheries, in the vicinity of South Georgia in the South Atlantic Ocean.<sup>144</sup> To the present time, these fisheries are still not capable of serious commercial fishing.<sup>145</sup> Does this mean CCAMLR has failed?

Realistically, it would seem unfair to lay all of the blame for the destruction of most of the Antarctic finfish stocks upon CCAMLR. The Convention came into force in 1981, by which time the destruction of most of the species had been completed. Although CCAMLR's early record of cooperative endeavor was poor, the first Conservation Measures introduced went some way to try to restore these stocks.<sup>146</sup> Later Conservation Measures have sought not merely to try to permit the fisheries to restore themselves by closure of areas, but also have imposed stringent by-catch controls in areas where other species are fished, to ensure that the biomass of the depleted fisheries is not further reduced.<sup>147</sup> The stocks have not recovered since their depletion, but it is difficult to see what more CCAMLR could do, although certainly more could have been done sooner.

A better estimate of CCAMLR's finfish performance might be to look at its treatment of a viable Antarctic finfish fishery. Only one commercial

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141. KOCK, *supra* note 43, at 189-91.

142. J.-C. Hureau & W. Slosarczyk, *Exploitation and Conservation of Antarctic Fishes and Recent Ichthyological Research in the Southern Ocean*, in *FISHES OF THE SOUTHERN OCEAN* 52, 59 (O. Gon & P.C. Heemstra eds., 1990).

143. KOCK, *supra* note 43, at 183-201.

144. Conservation Measures 1/III (1984), 3/IV (1985), 7/V (1986), 8/VI (1987), 9/VI (1987) and 10/VI (1987).

145. Karl-Herman Kock, *Fishing and Conservation in Southern Waters*, 30 *POLAR RECORD* 3, 15 (1994).

146. *Id.*; see also Conservation Measures 5/V (1986) and 6/V (1986) which imposed species fishing bans around the South Orkneys and Antarctic Peninsula.

147. See Conservation Measures 38/X (1991), 50/XI (1992), 68/XII (1993) and 85/XIII (1994).

species of Antarctic finfish was not destroyed in the years prior to CCAMLR, the Antarctic Lanternfish (*Electrona carlsbergi*). In CCAMLR's early years, catches of *E. carlsbergi* did not exceed 2,500 tonnes. However in 1988, this jumped to approximately 15,000 tonnes, and in 1989 to 30,000 tonnes.<sup>148</sup> In spite of reports of a biomass of in excess of 1.7 million tonnes, and a dearth of additional information concerning the fishery,<sup>149</sup> Conservation Measure 38/X (1991) was adopted by the Commission, setting a limit of 245,000 tonnes.<sup>150</sup> This was coupled with stringent by-catch requirements, and additional measures regarding data reporting.<sup>151</sup> More encouraging was the response of the Commission in 1993, to the continuing lack of data. Rather than maintain the total allowable catch (TAC) at the same level, it adopted a "precautionary TAC" of 200,000 tonnes because "in the continuing absence of any information on the biomass and biological characteristics of the stock . . . it was no longer acceptable for this stock to continue to set TACs in line with assessments that were several years old."<sup>152</sup> The catch in 1992 had amounted to some 47,000 tonnes,<sup>153</sup> and there was no evidence to suggest the stock was in decline. Yet CCAMLR applied a precautionary approach, to ensure that the chances of damage were minimized based on what data was known. This strongly suggests a genuine commitment on the part of the parties to effective conservation of Antarctic fisheries, and a desire to preserve, rather than to step in after the disaster and nurse destroyed fisheries back to health.<sup>154</sup>

## II. THE ARCTIC

### A. Introduction

Within the Arctic, there is no all-encompassing instrument like CCAMLR which deals with the whole Arctic marine ecosystem, or even with a single species for the whole region. From a geopolitical point of view, this is not surprising, given that the fisheries are widely separated from each other by permanent ice and continental land masses, and significant portions of the

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148. FAO, *supra* note 133a, at 265.

149. KOCK, *supra* note 43, at 233.

150. The substantive provisions in Conservation Measure 38/X (1991) were re-enacted in Conservation Measure 53/XI (1992).

151. Conservation Measures 39/X (1991) and 40/X (1991).

152. CCAMLR, *Report of the Twelfth Meeting of the Commission, Oct. 25, 1993 - Nov. 5, 1993*, at 27.

153. FAO, *supra* note 133a, at 265.

154. This is also borne out in the statement of the Chilean delegation to the Commission at CCAMLR-XIII, which stressed common responsibility and a precautionary approach to management. CCAMLR, *supra* note 128, at 23.

fisheries in question fall under the undisputed jurisdiction of individual states.<sup>155</sup> Individual states are generally reluctant to share management responsibility of stocks within their exclusive economic zones (EEZs), for obvious reasons, and usually do so only where some common interest presents them with an overarching compulsion to create an international arrangement. This is the essence of “regime formation” within regime theory in political science: that states only form regimes where they perceive that their interests would be best served by cooperative arrangements, rather than confrontation. Since a state will generally see little utility in cooperating in the management of a resource entirely within its care and control, such regimes rarely form.<sup>156</sup> When coupled with the political antagonism between East and West during the 1980s, and the strategic importance of the Arctic, it is not surprising that the number and scope of fisheries regimes that exist are relatively modest.<sup>157</sup>

Nevertheless, a number of fisheries arrangements operate (or attempt to operate) in Arctic waters, and are appropriate for comparison with CCAMLR. For the purposes of a useful case study, it is appropriate to consider the area that effects what was, until recently, the most significant Arctic fishery—the Bering Sea. The Bering Sea also has the distinction of being the site of the most recent attempt at international fisheries management, so it is a most suitable site for comparison.

### B. Bering Sea—Background

The Bering Sea is part of the North Pacific Ocean, and by some definitions would not even be considered Arctic.<sup>158</sup> It is linked to the Arctic Ocean by the narrow Bering Strait, and is delimited by the coasts of Alaska in the east, Siberia in the west, and in the south by the Aleutian

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155. The most significant fisheries in the Arctic are in the Bering Sea (largely within the U.S. and Russian EEZs), the Greenland Sea (Iceland and Greenland), the Norwegian Sea (Norway and Iceland) and the Barents Sea (Norway and Russia). Smaller scale fisheries are exploited in the Baffin Bay and Davis Strait regions (Canada and Greenland).

156. For general discussions on the nature of regime theory and formation see M. List & V. Rittberger, *Regime Theory and International Environmental Management*, in THE INTERNATIONAL POLITICS OF THE ENVIRONMENT 85 (Andrew Hurrell & Benedict Kingsbury eds., 1992); ORAN R. YOUNG, INTERNATIONAL COOPERATION: BUILDING REGIMES FOR NATURAL RESOURCES AND THE ENVIRONMENT (1989); Gail Osherenko & Oran R. Young, *The Formation of International Regimes: Hypotheses and Cases*, in POLAR POLITICS: CREATING INTERNATIONAL ENVIRONMENTAL REGIMES 1 (Oran R. Young & Gail Osherenko eds., 1993).

157. Those multilateral conventions which have been concluded include sub-Arctic fisheries as only part of their areas. Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries, Oct. 24, 1978, Sen. Exec. Doc. T, 96th Cong., 1st Sess. 1 (1979), Cmnd. 7569; Convention on Future Multilateral Cooperation in the North-East Atlantic, Nov. 18, 1980, 1285 U.N.T.S. 129, *OJ* 1980, L 227, 22; International Convention between the United States of America, Canada and Japan for the High Seas Fisheries of the North Pacific Ocean, May 9, 1952, 205 U.N.T.S. 65 (defunct since February 1993).

158. Parts of the Bering Sea are south of 60° North, well south of the Arctic Circle.



Islands.<sup>159</sup> It has an area of 2.274 million square kilometers, approximately ten percent of which are high seas.<sup>160</sup> A number of publicists have identified it as a semi-enclosed sea, within the definition encapsulated in Part IX of the 1982 Law of the Sea Convention, and there does not seem to be any serious dispute with such a conclusion.<sup>161</sup>

Before the 1980s, the Bering Sea was an important fishery, particularly for Japan.<sup>162</sup> The United States only claimed a three mile territorial sea, and the Soviet Union asserted a twelve mile territorial sea, leaving the fishery virtually unregulated.<sup>163</sup> Important stocks included pollock, herring, halibut and salmon,<sup>164</sup> particularly the first and the last of these. Efforts to bring pollock and other groundfish stocks under international management (as had been done for salmon) under the North Pacific High Seas Fisheries Convention<sup>165</sup> were unsuccessful, but fishing did not reach levels sufficient to collapse the fishery.<sup>166</sup>

Changes occurred in the 1980s, with the declaration of 200-nautical-mile zones by the USSR<sup>167</sup> and the United States.<sup>168</sup> The United States began to pursue a policy of exclusion of foreign fishing vessels from its EEZ, and

159. See Map II.

160. Jeffrey L. Canfield, *Recent Developments in Bering Sea Fisheries Conservation and Management*, 24 OCEAN DEV. & INT'L L. 257, 258 (1993); Lewis M. Alexander, *Regionalism and the Law of the Sea: The Case of Semi-Enclosed Seas*, 2 OCEAN DEV. & INT'L L. 151, 158 (1974).

161. For example, see Alexander, *supra* note 160, at 158, 168; Lorene Mioviski, *Solutions in the Convention on the Law of the Sea to the Problem of Overfishing in the Central Bering Sea: Analysis of the Convention, Highlighting the Provisions Concerning Fisheries and Enclosed and Semi-Enclosed Seas*, 26 SAN DIEGO L. REV. 525 (1989).

162. See Meltzer, *supra* note 23, at 283-84.

163. The United States did have a 200-mile fishing zone in 1977, but permitted access by other States. *Id.*

164. As an anadromous stock, North Pacific salmon ought to be considered separately, and given that they spawn in rivers in the continental United States, Canada and eastern Siberia, they cannot truly be considered Arctic in character. In addition, different provisions of the Law of the Sea Convention relate to their exploitation, strengthening the need for a distinction to be drawn. For these reasons they will not be considered here. Regional management of salmon falls under the International Convention on Conservation and Management of Anadromous Fish Resources in the wider North Pacific Region. See Artemy A. Saquirian, *Russia and Some Pending Law of the Sea Issues in the North Pacific: Controversies over Higher Seas Fisheries Regulation and Delimitation of Marine Spaces*, 23 OCEAN DEV. & INT'L L. 1, 3-4 (1992).

165. International Convention between the United States of America, Canada and Japan for the High Seas Fisheries of the North Pacific Ocean, May 9, 1952, 205 U.N.T.S. 65 [hereinafter INPFC Convention].

166. The INPFC Convention was effectively terminated by the withdrawal of the United States in February 1993. The Convention installed to replace it only deals with salmon. Canfield, *supra* note 160, 266-67.

167. DECREE OF THE PRESIDIUM OF THE SUPREME SOVIET OF THE USSR ON THE ECONOMIC ZONE OF THE USSR - 28 February 1984, reprinted in ROBERT W. SMITH, *EXCLUSIVE ECONOMIC ZONE CLAIMS: AN ANALYSIS AND PRIMARY DOCUMENTS* 417-18 (1986).

168. Proclamation No. 5030, March 10, 1983, 22 I.L.M. 461 (1983). The United States had instituted a fishing zone in 1977.

this was to have important consequences for the region.<sup>169</sup> Although the Bering Sea is semi-enclosed, the central area is more than 200 nautical miles from land, leaving a large oval-shaped zone of high seas unofficially known as the "Doughnut Hole."<sup>170</sup> Once excluded from the U.S. EEZ, the foreign fishing fleets from Japan, South Korea and Poland shifted their Bering Sea operations to the Doughnut Hole, where they were free to fish without regulation.<sup>171</sup>

The change in practice can be seen dramatically when comparing levels of exploitation of fish in the Doughnut Hole before and after the advent of EEZs in the region. In 1980, 15,000 metric tonnes of pollock were harvested.<sup>172</sup> In 1985, this had grown to 363,000 metric tonnes, rising to 1,040,000 tonnes in 1986 and 1,448,000 tonnes in 1989.<sup>173</sup> While the figures may be distorted by the Doughnut Hole being used as a base for illegal pollock raids on the U.S. EEZ,<sup>174</sup> it is clear there was a vast and dramatic shift in fishing practices in the Bering Sea.

The sudden rise in the catches in the Bering Sea was a source of some concern for scientists. Mioviski notes that in 1988, at a time when catch levels were still rising, scientists from the states fishing in the Doughnut Hole met at Sitka to discuss the state of the pollock stock.<sup>175</sup> The meeting voiced fears that overfishing was taking place, and called for expanded research in the region and a coordinated international programme for fishery exploitation.<sup>176</sup> The calls of the scientific community went unheeded. In 1989, the catch for the Doughnut Hole reached a record high, and by 1992 the stock had completely collapsed.<sup>177</sup>

### C. *Doughnut Hole Convention*

International efforts to regulate the fishery began in earnest only when it was apparent the stock was under threat. Meetings began in Washington D.C. in 1991, initiated by the two coastal states, the United States and

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169. The exclusion of foreign fishing vessels was phased in over a number of years. Edward L. Miles & David L. Fluharty, *U.S. Interests in the North Pacific*, 22 OCEAN DEV. & INT'L L. 315, 318 (1991).

170. See Map II.

171. Edward L. Miles & William T. Burke, *Pressures on the United Nations Convention on the Law of the Sea of 1982 Arising from New Fisheries Conflicts: The Problem of Straddling Stocks*, 20 OCEAN DEV. & INT'L L. 343, 348-49 (1989).

172. Mioviski, *supra* note 161, at 527.

173. Meltzer, *supra* note 23, at 286.

174. Fisheries authorities in the United States are of the view that foreign vessels operating in the Doughnut Hole stray into the U.S. EEZ, although what impact that has on the statistics is difficult to quantify. Canfield, *supra* note 160, at 260-61.

175. Mioviski, *supra* note 161, at 528-29.

176. *Id.*

177. Meltzer, *supra* note 23, at 286.

Russia.<sup>178</sup> In addition to these two states, delegations from China, Japan, South Korea and Poland participated as distant water fishing nations (DWFNs). It is a measure of the importance of the issue that subsequent conferences were held at six-monthly intervals.<sup>179</sup> Little effective progress was made as there was a fundamental difference of opinion between the coastal states, who wanted a moratorium or a fixed cap to fishing in the Doughnut Hole, to operate in conjunction with their EEZ management systems. The DWFNs objected on the basis that management or a moratorium would deprive them of catches whereas the coastal States could continue to fish the region from within their EEZs.<sup>180</sup> Such an argument has some force when the size of the catches within the U.S. and Russian EEZs are compared to that of the Doughnut Hole.

TABLE II  
Pollock Catch in the Bering Sea  
(figures in thousands of metric tonnes)<sup>181</sup>

Year	1980	1981	1982	1983	1984	1985
US EEZ	958	974	956	982	1099	1179
Russian EEZ	928	891	1019	971	756	662
Doughnut Hole	18	0	4	71	182	363

Year	1986	1987	1988	1989	1990	1991
US EEZ	1189	1237	1228	1230	1315	1364
Russian EEZ	867	812	1327	1029	814	504
Doughnut Hole	1040	1326	1397	1448	918	293

178. Cf. Miles & Fluharty, *supra* note 169, at 323-25.

179. Canfield, *supra* note 160, at 269-70.

180. *Id.* at 269-70.

181. Adapted from Meltzer, *supra* note 23, at 286.

The disappearance of the pollock in 1992 finally brought progress to the negotiations. At the fifth conference, the parties finally agreed to an interim moratorium on fishing in the Doughnut Hole in 1993.<sup>182</sup> This moratorium was extended at subsequent conferences for 1994 and 1995, while negotiations toward a more permanent management regime took place.<sup>183</sup> This was finally achieved in June 1994 with the conclusion of the Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea.<sup>184</sup>

The Doughnut Hole Convention applies to the Bering Sea beyond the EEZ of any State, so it is confined to the Hole alone.<sup>185</sup> It also states among its objectives the conservation, management and optimum utilization of the pollock stock.<sup>186</sup> It also aims to restore the stock to levels which will permit the maximum sustainable yield.<sup>187</sup> The only concession made to a wider approach to management comes in Article II(4) which allows the parties, if they agree, to establish necessary conservation and management measures for marine living resources other than pollock within the Doughnut Hole.<sup>188</sup>

These objectives evidence a traditional "issue specific" approach to fisheries management, which neatly demonstrates the exact scope of the problem facing the parties. The regime deals with no more than the specific difficulty currently affecting the states concerned. There is only the sentiment expressed in Article II(4), that if the parties agree they *may talk* about the regulation of other species within the Doughnut Hole, otherwise the Convention shies away from any reference to the inter-relationship of marine species or to the pollock and other creatures that are within the EEZs of Russia and the United States. The reference to maximum sustainable yield in determining the acceptable level of pollock biomass confirms the conservative nature of the Convention.<sup>189</sup>

Administration of the Doughnut Hole will be by an Annual Conference of the Parties, with the assistance of a Scientific and Technical Committee.<sup>190</sup> The Annual Conference has the task of determining the annual

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182. W.V. Dunlap, *Bering Sea—The Donut Hole Agreement*, 10 INT'L J. MARINE & COASTAL L. 114, 116 (1995); e.g., Canfield, *supra* note 160, at 270-71.

183. Canfield, *supra* note 160, at 271.

184. Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, June 16, 1994, 34 I.L.M. 67 (1985), *reprinted in* 10 INT'L J. MARINE & COASTAL L. 127-34 (1995) [hereinafter the Doughnut Hole Convention].

185. *Id.* art. I.

186. *Id.* art. II(1).

187. *Id.* art. II(2).

188. Article II(4) states that one of the objectives of the Convention shall be: "to provide, if the Parties agree, a forum in which to consider the establishment of necessary conservation and management measures for living marine resources other than pollock in the Convention Area as may be required in the future." *Id.* art II(4).

189. *Id.* art. II(2).

190. *Id.* art. III(1).

harvest level for pollock (AHL)<sup>191</sup> and the quotas for each fishing State (INQ),<sup>192</sup> as well as the task of formulating other conservation and management measures for pollock that are deemed necessary.<sup>193</sup> It may also *inter alia*, discuss methods of cooperative enforcement<sup>194</sup> and fishery support operations in the Doughnut Hole,<sup>195</sup> direct the Scientific and Technical Committee's "Plan of Work,"<sup>196</sup> "consider" other conservation matters relating to species other than pollock,<sup>197</sup> and any other matters necessary to meet the Convention's objectives.<sup>198</sup>

Decisions of the Annual Conference are to be made by consensus on all matters of substance, and the nature of any issue is itself a matter of substance.<sup>199</sup> Each year the Conference will convene in the territory of one of the parties, and based on reports of the Scientific and Technical Committee, will determine the AHL for the following year, and the INQ for each party.<sup>200</sup> In the event a consensus solution cannot be reached, the Convention sets up mandatory procedures to determine the AHL,<sup>201</sup> and guidelines for the allocation of INQs.<sup>202</sup> Observers are permitted, if unanimously accepted by the parties at conferences, but only if they are the representatives of a non-party State.<sup>203</sup> There would seem to be no scope for the participation of NGOs or international organizations.<sup>204</sup>

The Scientific and Technical Committee will draw its membership from the participating States which are each entitled to at least one member.<sup>205</sup> The reference to *at least one member* seems to suggest that States might nominate a number of members if necessary, although there also appears to be a strong presumption of equality among the states. The Scientific and Technical Committee's task is to act as a conduit through which national

191. Doughnut Hole Convention, *supra* note 184, art. IV(1)(a).

192. *Id.* art. IV(1)(b).

193. *Id.* art. IV(1)(c).

194. *Id.* art. IV(1)(g).

195. *Id.* art. IV(1)(f).

196. *Id.* art. IV(1)(d).

197. *Id.* art. IV(1)(i).

198. *Id.* art. IV(1)(m).

199. *Id.* art. V(2).

200. *Id.* arts. VI-VIII.

201. *Id.* art. VII(2) & Annex pt. 1. The procedure involves the calculation of the pollock biomass by American and Russian institutions, based on data provided by the Scientific and Technical Committee. Once a biomass has been determined, the AHL is dependent on the size of the biomass—with no fishing to take place if the total stock is less than 1.67 million tonnes.

202. *Id.* art. VIII(2) & Annex pt. 2. Rather than a mandatory procedure, Part 2 of the Annex specifies factors to be taken into account in the creation of a management system. These include the recommendations of the Scientific and Technical Committee, the scope, level and efficiency of each state's fishing effort; the opportunity for all parties to fish, and appropriate monitoring and conservation procedures.

203. *Id.* art. XII(5).

204. *Id.*

205. *Id.* art. IX(1).

pollock research can be channelled and filtered to the Annual Conference, as well as to undertake specific tasks and work allocated to it by the Conference.<sup>206</sup> The need to make the regime as cost-effective as possible was responsible for the adoption of an Annual Conference rather than a permanent secretariat,<sup>207</sup> thus it may be considered unlikely the Scientific and Technical Committee will develop its own independent research capability in the foreseeable future. The Committee is to report to the Annual Conference, making recommendations in relation to the exploitation of pollock, including the AHL for the preceding year.<sup>208</sup> Such recommendations ought to be by consensus, where it is attainable, and with all views recorded in the report where it is not.<sup>209</sup>

Enforcement is both flag-state and cooperative. First, each State undertakes to ensure compliance with the Convention and any conservation measures made under it.<sup>210</sup> This includes permitting fishing in the Doughnut Hole by only expressly authorized vessels,<sup>211</sup> the fitting of each vessel with satellite location transmitters,<sup>212</sup> notification of entry into the Hole and of transshipments of fish out of the Hole.<sup>213</sup> All data collected on fish catches and vessel locations must be exchanged between the parties at regular intervals, and in the case of the latter, on a real-time basis.<sup>214</sup> All vessels are to carry trained observers, with a preference for non-flag-state observers where possible.<sup>215</sup> Their task is to monitor the implementation of conservation and management measures and to report to the vessel's flag state and their own state.<sup>216</sup>

All states parties consent to the boarding and inspection of their vessels in the Doughnut Hole by officials of the other parties.<sup>217</sup> If a violation is found, the flag state is to be informed, and is obliged to order its vessel to cease the violations, and if necessary, to leave the Doughnut Hole.<sup>218</sup> If the violation involves fishing beyond allowable limits or an unauthorized excursion into the Doughnut Hole and the flag state cannot immediately meet its obligation, the boarding of the vessel may continue until the flag state can take over.<sup>219</sup> This means, in effect, that an arrest can be made by any

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206. *Id.* arts. IX, X.

207. Dunlap, *supra* note 182, 117 n.20.

208. Doughnut Hole Convention, *supra* note 184, art. IX(4).

209. *Id.* art. IX(1)-(4).

210. *Id.* art. XI(1).

211. *Id.* art. XI(2).

212. *Id.* art. XI(3)(a).

213. *Id.* art. XI(3)(b) & (c).

214. The intervals are to be set by the Annual Conference. *Id.* art. XI(4).

215. *Id.* art. XI(5).

216. *Id.* art. XI(5)(e).

217. *Id.* art. XI(6)(a).

218. *Id.* art. XI(7).

219. *Id.* art. XI(7)(b).

party, although in effect the arrest is made on behalf of the flag state. All offences are to be tried in the flag state's courts under domestic law, with penalties reflecting the seriousness of infractions.<sup>220</sup> To prevent circumvention of the law by the use of flags-of-convenience, the parties are obliged to pass legislation to prevent the transfer of registration for that purpose.<sup>221</sup>

The Doughnut Hole Convention's attitude to third party states is worthy of comment. Third party states are to have their attention drawn (by the states parties) to activities of their nationals or vessels that might hinder the attainment of the Doughnut Hole Convention's objectives and are to be *encouraged* to respect the provisions of the Convention and the measures taken pursuant to it.<sup>222</sup> This is not much different from the language of a number of fisheries conventions, including CCAMLR,<sup>223</sup> but Article XII(3) of the Doughnut Hole Convention goes further. The parties agree to take measures individually or collectively, consistent with international law, to deter a third party state from activities that adversely affect the attainment of the Convention's objectives.<sup>224</sup> This could encompass a range of measures, including refusal of port access, the imposition of tariffs against the third party state's fish and possibly other forms of more radical economic retaliation.<sup>225</sup>

It might be argued that if Canada's actions against Spanish fishing on the Grand Banks in March 1995<sup>226</sup> subsequently receive sanction from the International Court of Justice or the international community, that similar action could be taken in the Doughnut Hole under the language of Article XII(3). If the third state whose nationals or vessels are fishing in the Doughnut Hole is amenable to joining the Convention, the present parties may unanimously invite the third state to join.<sup>227</sup>

It is difficult to give an effective assessment of the Doughnut Hole Convention in action, as the agreement itself has only just begun to come into operation. The first Annual Conference was held in Seattle in November

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220. *Id.* art. XI(7)(c) & (d).

221. *Id.* art. XII(4).

222. *Id.* art. XII.

223. Compare CCAMLR, *supra* note 29, art. X (directing the Commission to draw the matter to the attention of third states) with CCAMLR, art. XXII(1) (hinting at stronger action, subject only to the United Nations Charter).

224. Doughnut Hole Convention, *supra* note 184, art. XII(2).

225. Such measures could be akin to those under the *Fishery Conservation and Management Act of 1976 (Magnuson Act)* 16 U.S.C. § 1801 (1994); see B. Martin Tsamenyi, *The Treaty on Fisheries between the Governments of Certain South Pacific Island States and the Government of the United States of America: The Final Chapter in United States Tuna Policy*, 15 BROOK. J. INT'L L. 183, 193.

226. In March 1995, Canada unilaterally enacted legislation to prohibit Spanish and Portuguese vessels from fishing for turbot on the Grand Banks of Newfoundland, beyond the Canadian EEZ. The resulting dispute between the EU and Canada saw trawler nets cut, warning shots fired and the arrest of a Spanish vessel on the high seas before it was resolved.

227. Doughnut Hole Convention, *supra* note 184, art. XVI(4).

1995,<sup>228</sup> so the various mechanisms under the Convention have yet to be tested. However, it is possible to draw from the history of agreements with similar provisions on the chances of there being no further over-exploitation of the stock and effective cooperation between the parties.<sup>229</sup>

At present, cooperation between the parties is high—the stock has collapsed and it is in the interests of all that it be rebuilt to commercial levels. However, regulation only extends as far as the Convention to the Doughnut Hole itself. While urging a moratorium inside the Hole, there is nothing to stop the United States and Russia from continuing to fish in their EEZs. Scientific evidence suggests a link between the Doughnut Hole stock and those in the EEZs, particularly to the Bogoslof Island area within the U.S. Zone.<sup>230</sup> Continued fishing by the two coastal states may jeopardize the recovery of the Doughnut Hole stock, and act to prejudice the DWFNs from cooperation. This situation could well be exacerbated in the event the Doughnut Hole stock rebuilds, as quotas might be depressed by overfishing from within the EEZ areas.

There is also a close geographical precedent to suggest that cooperation vanishes if a stock has not failed. The Sea of Okhotsk “Peanut Hole,” a small area of high seas entirely surrounded by the Russian EEZ, is currently fished by vessels from Poland and China, and recently South Korea and Japan.<sup>231</sup> Although Russian scientists have said present levels of fishing threaten the viability of stocks in the region, neither China nor Poland has proved amenable to negotiation—in spite of the lessons of the Bering Sea, and the fact that all of the affected states are parties to the Doughnut Hole Convention.<sup>232</sup> Given the Doughnut Hole’s history prior to the collapse of the stock, and the current situation with many of the same players in the Sea of Okhotsk, the success of the Doughnut Hole Convention appears somewhat problematic should the pollock ever recover.

### III. COMPARISONS

There are a number of points of comparison between CCAMLR and the Doughnut Hole Convention. First, although there are differences in the scale of the harvests, there is a great deal of similarity between the nature of the catches in the Arctic and the Antarctic. Both pollock and krill are central

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228. *E.g.*, Dunlap, *supra* note 182, at 117.

229. These range from the outright and ongoing hostility between some of the parties to the North Atlantic Fisheries Convention, to the degree of goodwill presently existing between the parties to CCAMLR.

230. Canfield notes that eighty percent of Doughnut Hole pollock come from the Bogoslof area. Canfield, *supra* note 160, at 261.

231. Meltzer, *supra* note 23, at 290-91.

232. *Cf. id.* at 290-93; A.G. Oude Elferink, *Fisheries in the Sea of Okhotsk High Seas Enclave—The Russian Federation’s Attempts at Coastal State Control*, 10 INT’L J. MARINE & COASTAL L. 1 (1995).



organisms in very limited and narrow ecosystems,<sup>233</sup> whose depredation could have significant impacts upon other fauna. The pollock and krill harvests produce relatively little in the way of by-catch, and are remarkably “clean” compared to more temperate fisheries.<sup>234</sup> Both regions have seen major damage done to marine living resources through over exploitation of Antarctic finfish and pollock.

There are also elements of similarity between the two regimes under consideration. Both operate on consensus as the basis for decision-making, giving each of the parties an effective veto. Both seek to encourage the effectiveness of the regime through the encouragement of third party states to comply with its provisions. Both are closed to new members save by invitation of all the states concerned. Both take the advice of a scientific committee, through whom data pertaining to the state of the fisheries is evaluated.

Yet these similarities are superficial, and they mark points in common between fundamental differences in attitude and approach. These differences are most starkly portrayed in the objectives of the two regimes. CCAMLR’s objectives are to institute an ecosystem management system, and a precautionary approach to intervention in the Antarctic environment. The Doughnut Hole Convention’s objective is the exploitation of the maximum sustainable yield of pollock. There is no reference to precaution in the Convention, in spite of its conclusion in 1994, and the totality of the Arctic ecosystem is scarcely paid lip service.

The reasons for the differences can be found in political rather than ecological reality. In the Antarctic, a history of close apolitical cooperation founded in scientific endeavor exists. The Antarctic Treaty grew out of a desire to depoliticize the continent, and perpetuate the goodwill engendered between scientists during the International Geophysical Year (IGY) in 1957-58.<sup>235</sup> As part of the ATS, CCAMLR had more than two decades of fruitful interaction on which to build.

In the Arctic, the political situation is reversed. There was a great deal of antagonism between Russia and the United States in the years between the end of the Second World War and the collapse of the USSR. As the maritime area where the two superpowers directly faced off, the Bering Sea was an important theater of any potential conflict. This alone was sufficient to stifle most attempts at Arctic regional cooperation. Even when the strategic tensions between the two coastal states in the Bering Sea were

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233. The central positions of pollock and particularly krill are shown in the discussions and food web diagrams of Ainley and De Master. D.G. Ainley & D.P. De Master, *The Upper Trophic Levels in Polar Marine Ecosystems*, in POLAR OCEANOGRAPHY: CHEMISTRY, BIOLOGY, AND GEOLOGY 599, 602-09 (Walker O. Smith ed., 1990).

234. In spite of this, note Conservation Measures 38/X (1991), 50/XI (1992), 68/XII (1993) and 85/XIII (1994), all of which impose strict by-catch limits on particular fisheries.

235. The scientific cooperation seen in the Antarctic during the IGY is usually viewed as one of the significant factors in the negotiation of the Antarctic Treaty. Cf. AUBURN, *supra* note 39, at 104.

sufficiently diminished to permit effective discussion of management of the Bering Sea, the DWFNs involved had their own interests and agenda which hampered efforts at a solution. The actual formation of a regime required an environmental disaster that practically destroyed all parties' interests before national self-interest was perceived to be best served by negotiation.

This background suggests that levels of cooperation in the Antarctic are likely to be much higher than in the Arctic, and accordingly the regime has a greater chance of functioning effectively. That such cooperation is possible cannot solely be ascribed to the depoliticization of Antarctica by Article IV of the Antarctic Treaty. Political disputes and even military action concerning territory within the CCAMLR area have not prevented meaningful dialogue and joint responses to problems. Britain and Argentina dispute the sovereignty over South Georgia and the South Sandwich Islands, and there was fighting on South Georgia (including the destruction of an Argentinean submarine) in 1982.<sup>236</sup> Publicists have often made much of the demilitarization of the Antarctic, noting that the Antarctic Treaty forbids military action south of 60° South, and the fact that both Argentina and Britain respected that provision.<sup>237</sup> No such provision required their compliance for South Georgia or the South Sandwiches, as both states assert 200-nautical-mile zones around the islands.<sup>238</sup> In spite of actual hostilities, and unwavering claims, both Britain and Argentina have taken joint action, within CCAMLR, to ensure that the fisheries around the islands, which are far and away the most important in the Southern Ocean, are adequately protected.<sup>239</sup> Thus to suggest that Arctic cooperation on fisheries is impossible due to the geopolitical situation in the region is perhaps an underestimation of what can be achieved.

It is submitted that the most significant difference between the Arctic and the Antarctic is to be found in the influence of epistemic communities in the negotiation of the regimes, and the continuing impact of these communities over time. In the Antarctic, the SCAR has over thirty years experience in consulting with ATCPs on environmental and scientific issues.<sup>240</sup> Even before the CCAMLR negotiations, SCAR had determined the necessity of constructing multi-species models of the Antarctic marine ecosystem as part

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236. MARTIN MIDDLEBROOK, *THE FIGHT FOR THE 'MALVINAS'* 72 (1989).

237. The Antarctic Treaty, *supra* note 6, art. I(1).

238. Argentina: Act No.23.268 of 14 August 1991 (as part of the EEZ of metropolitan Argentina); Britain: PROCLAMATION (MARITIME ZONE) No. 1 of 1993, *reprinted in* South Georgia and the South Sandwich Islands Gazette, May 7, 1993.

239. Naturally both reject the other party's position on sovereignty. Cooperation has taken place in setting up a South Atlantic Fisheries Commission in 1989, and with a joint statement on May 7, 1993, after Britain had declared an EEZ around South Georgia and the South Sandwich Islands. See Meltzer, *supra* note 23, at 277-78.

240. SCAR's role is perceived to be most important in the provision of scientific advice to the ATCPs. Its membership consists of scientists from states engaged in scientific research in the Antarctic. MITCHELL & SANDBROOK, *supra* note 42, at 9.

of the BIOMASS program.<sup>241</sup> The Antarctic Treaty itself arose out of scientific cooperation in the 1950s, and individual states have maintained this link in a number of ways. The people most likely to have Antarctic expertise are former expeditioners, who are almost invariably scientists. These experts are found administering Antarctic departments within ATCPs, and consequently they exert a significant impact on Antarctic policy.<sup>242</sup> The objectives of CCAMLR reflect a scientist's views of how environmental management should take place—there is a recognition of the complex relationships within the environment; that actions that impact upon one element affect the other elements to varying degrees. The institutional structure of CCAMLR with its Scientific Committee also fosters the epistemic connections, and has led to a situation where the ATCPs were prepared to consent to the participation of scientific and environmental NGOs within the CCAMLR processes.

The Doughnut Hole Convention has a similar Scientific and Technical Committee within its organizational structure, but there is nothing to suggest there is an influential epistemic community utilizing the structure. The Doughnut Hole Convention objectives reflect the national fishing lobbies' desire for the greatest return of fish possible. Even though there are serious scientific doubts over the efficacy of maximum sustainable yield<sup>243</sup> and its compatibility with international environmental law's movement toward a precautionary approach,<sup>244</sup> it is still within the text of the Doughnut Hole Convention. There is no scope for participation, outside of the directly affected states, for NGOs, and there is no encouragement to establish links with scientific or other bodies. Further, calls by scientists in 1988 to prevent collapse of the stock were ignored,<sup>245</sup> and the stocks ultimately collapsed as feared.

From the above, it would be easy to suggest that the Doughnut Hole Convention is doomed to fail, and CCAMLR is a raging success. Such a suggestion would not be accurate. The Doughnut Hole Convention, although conservative and vulnerable to disagreement between the parties, is a step in the right direction. Certainly it is infinitely preferable to the complete lack of regulation that existed before. The tragedy in its creation is that it took the complete destruction of a vast and valuable resource to give rise to the conditions that brought it into existence. In the Antarctic, similar tragedies took place years before, and CCAMLR was a conscious effort to prevent a more dreadful recurrence. The greater strength of the international Antarctic scientific community allowed CCAMLR to appear sooner, and be given an

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241. *Id.* at 52-53.

242. For example, at least six delegations to the ATCP in Kyoto in 1993 were headed by individuals with scientific backgrounds, and no more than three did not have an individual with such a background in their delegations.

243. See *supra* text accompanying note 61.

244. See *supra* text accompanying note 34-35.

245. See *supra* text accompanying notes 175-77.

objective more in keeping with the desire to conserve.

CCAMLR has not entirely succeeded in its objectives for a number of reasons—chiefly linked to the paucity of the CCAMLR Commission’s resources and the attendant difficulties in setting up a database that can permit ecosystem management to become a reality. However, each year the database grows and the possibility of true ecosystem management comes closer. Some publicists have doubted whether such an objective is possible at all; that the natural environment is too complex a system to permit such totally encompassing management. This may prove to be so, but the polar environments provide us with the most simple ecological systems anywhere on the planet, and if ecosystem management can ever be achieved, it can be achieved in these places. If cooperation within CCAMLR remains solid, then the possibility of the regime functioning as an effective model for other marine living resource regimes remains real. The time may not yet be ripe, but it may be approaching.

What should make greater cooperation possible in the Arctic is the fact that there is a significant overlap of the protagonists in both regions—Russia, Japan, Norway, Poland and the United States are major players in both the South and the North. European Union states, particularly Britain and Germany, also have growing interests in the Arctic and the Antarctic. What is it that prevents cooperation on fisheries?

Ultimately what stifles the cooperation in the Arctic is sovereignty. In the Antarctic, the political environment is “sovereignty-neutral.” Claimant states in Antarctica could and have claimed EEZs for their territory, but most fishing states would simply ignore them. A cooperative regime was the only effective way to protect the resources. In the Arctic, EEZs are claimed by coastal states, and recognised by fishing states. Rather than dilute sovereignty, a coastal state will seek to manage areas within its EEZ itself, largely without reference to adjacent EEZs or high seas, or the Arctic ecosystem as a whole.<sup>246</sup>

In short, to establish an ecosystem-based approach to fisheries management in the Arctic, it will be necessary for coastal states to accept some diminution of their jurisdictional control over Arctic waters within 200 miles of their territory. The Arctic Environmental Protection Strategy may be the precursor of such cooperative change, but at present it seems far off. Until it occurs, the two systems existing at each end of the globe will remain as different as they are remote from each other—each providing alternative models for regional fisheries management for the world.

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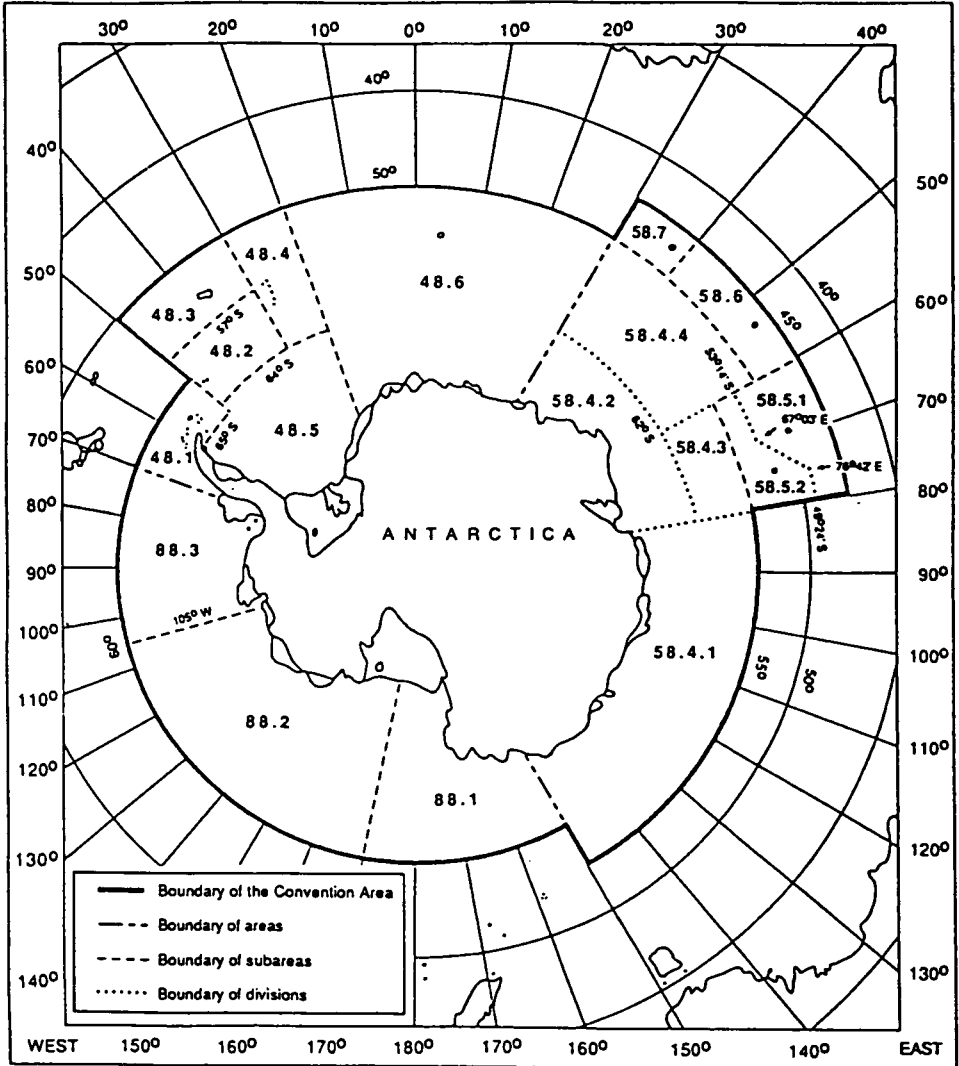
246. Such a conclusion is confirmed by the virtual absence of regional cooperation in the Arctic in the area of marine living resources (a notable exception being the Agreement on the Conservation of Polar Bears, Nov. 15, 1973, 27 U.S.T. 3918, 13 I.L.M. 13 (1974)), the lack of cooperation within an organization like NAFO which potentially could play a role in Arctic fisheries management, and the jurisdictional limits of the Doughnut Hole Convention itself.

APPENDIX

Map 1

(reprinted from Kock, *supra* note 43, at 214)

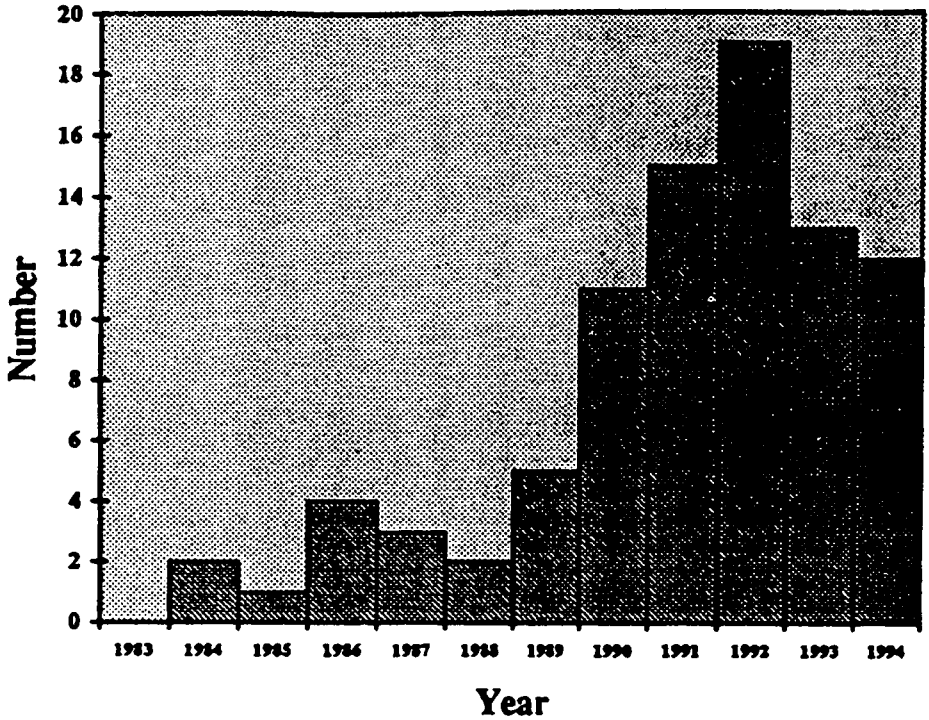
Fig. 66. CCAMLR Statistical Areas, Subareas and Divisions.



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Graph I

## CCAMLR Conservation Measures

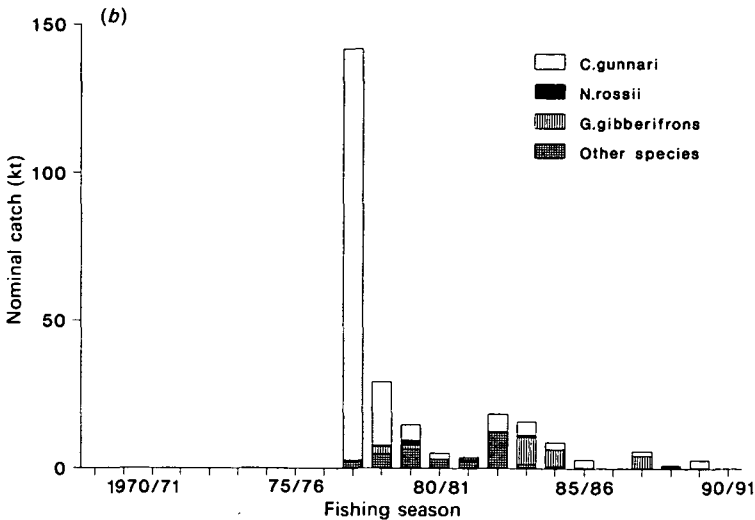
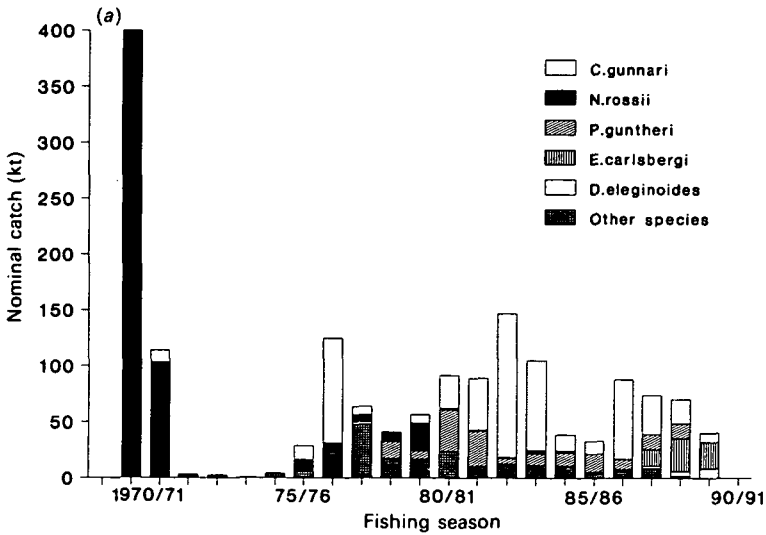


*Graphs II & III*

(reprinted from Kock, *supra* note 43, at 186)

(a) Nominal catch by species around South Georgia (FAO Statistical Subarea 48.3) from 1969/70 to 1989/90 (Anon. 1990a,c).

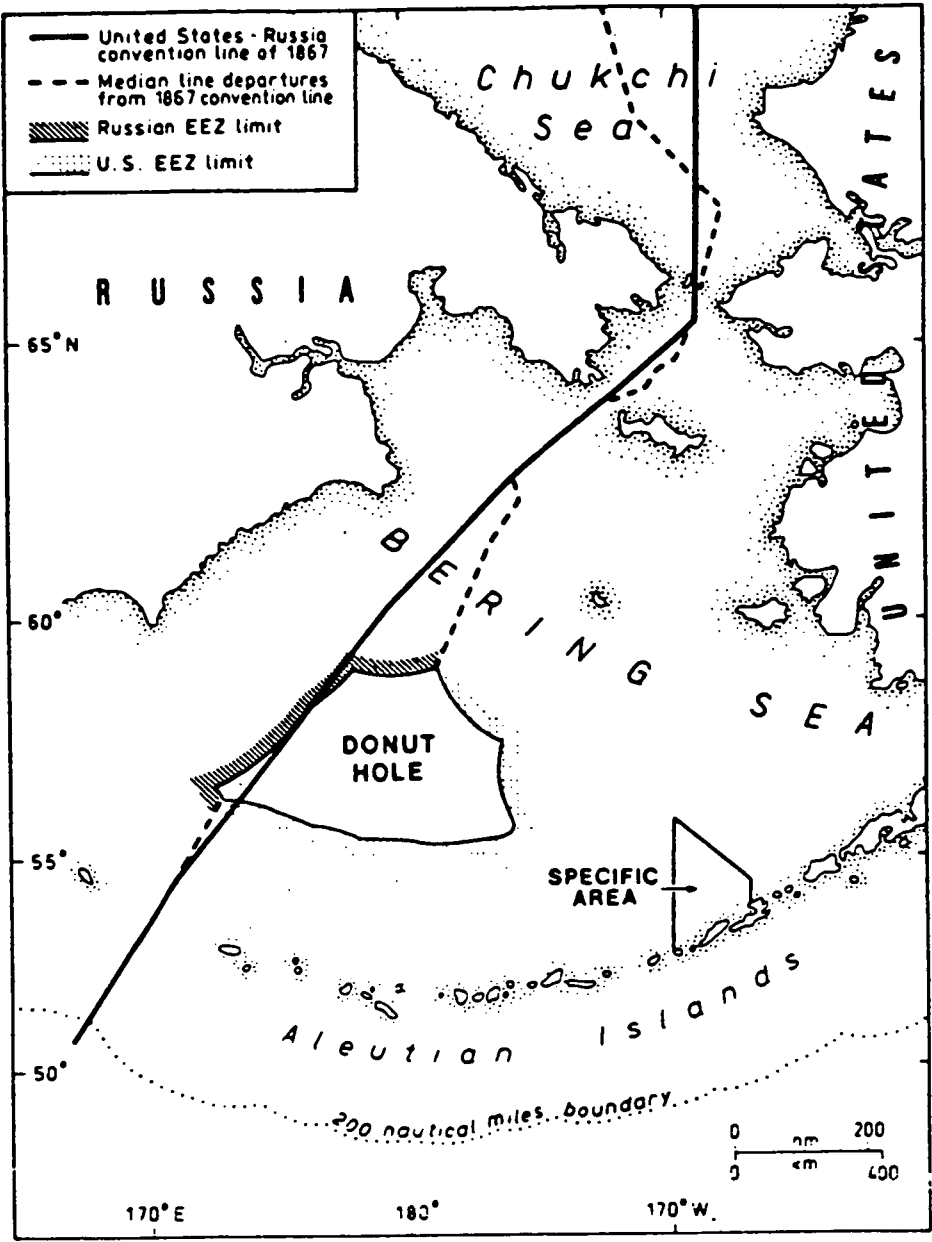
(b) Nominal catch by species around the South Orkney Islands (FAO Statistical Subarea 48.2) from 1977/78 to 1989/90 (anon., 1990a,c).



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Map II

(reprinted from Dunlap, *supra* note 182, at 115)



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