

‘Rational use’ in Antarctic waters



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ABSTRACT

The Convention for the Conservation of Antarctic Marine Living Resources (CAMLR Convention) is the legal doctrine presiding over the exploitation of marine life in the Southern Ocean. At recent Commission (CCAMLR) meetings, some member states have interpreted the term ‘rational use’ in the Convention text as ‘the unrestricted right to fish’ and, most recently, the term has been evoked in opposition to the establishment of marine protected areas. Tensions over interpretation of the term at CCAMLR are tracked and presented. The term’s meaning and original intent are also explored in the publicly available record of treaty negotiations. According to negotiation documents as well as the CAMLR Convention, the term ‘rational use’ does not imply an unconditional right to exploit marine life in the Southern Ocean. Like ‘scientific uncertainty,’ which has also been evoked in ways that reflect social values, ‘rational use’ should be seen as a value-laden term, rather than as an explicit mandate to fish.

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1. Introduction

The Southern Ocean (waters south of the Antarctic Polar Front) surrounds the continent of Antarctica and supports more than 8200 species [1]. It is among the most remote and least perturbed areas of the world [2] and represents 10% of the world’s ocean. There is no single dominant national power in the region, but rather many stakeholders exhibiting highly divergent and changing interests over time. The sense that the Antarctic is special has guided policy for more than a century. In 1959, the Antarctic Treaty was signed (today there are 52 signatory parties), and subsequent amendments (e.g., 1964 Agreed Measures for the Conservation of Antarctic Flora and Fauna, 1991 Protocol for Environmental Protection) promoted the preservation and conservation of living resources, and helped prevent “harmful interference” and “taking” of species that spend some or all of their time on land.

However, all Antarctic life was not afforded the same protection. The Antarctic Treaty explicitly stated it would not prejudice high seas rights and, in so doing, largely disavowed management of the marine environment, which became active hunting grounds. Following the overexploitation of marine animals closer to market

centers, foreign industries expanded into deeper and more distant waters, including into the Southern Ocean [3]. Today, the coastal Antarctic Peninsula shows a ‘fishing down the food web’ trend: marine mammal populations (whales and seals) collapsed by the 1970s, groundfish by the early 1980s, and now economically viable fishing is confined to the invertebrate, Antarctic krill [4]. Elsewhere in the Southern Ocean, the same scenario occurred, with the added issue that another species group, the especially lucrative Patagonian and Antarctic toothfish, became globally marketed and heavily fished after krill fishing was initiated (Fig. 1) [4].

Protections for certain Antarctic marine animals eventually transpired. The International Whaling Commission protected whales and established the Southern Ocean Whale Sanctuary in 1994 with the support of 23 states. The Convention for the Conservation of Antarctic Seals, developed to manage the exploitation of seals, was signed in 1972. But fin fisheries remained unregulated. These became managed as of 1982 by the Convention for the Conservation of Antarctic Marine Living Resources (CAMLR Convention), originally signed by 14 states (Table 1). Article II states: “The objective of this Convention is the conservation of Antarctic marine living resources. For the purposes of this Convention, the term ‘conservation’ includes rational use.” (Table 2).

Today, the CAMLR Commission (CCAMLR) includes 24 states as well as the European Union (Table 1), and some of these members – particularly fishing states – interpret ‘rational use’ as ‘the right to fish’ during decision-making processes (Table 3). Some states have

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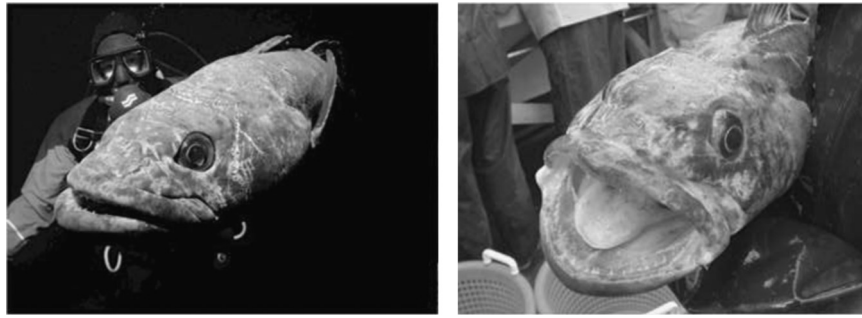


Fig. 1. Not all species in Antarctica experience the same levels of protection. Active fisheries in the region include those for Patagonian and Antarctic toothfish (*Dissostichus* spp.). Photo credit: Rob Robbins (left) and Darci Lombard (right).

Table 1

Current CCAMLR members (and for fishing states, percentage of reported fish catch by tonnes from 1982 to 2012; data from CCAMLR Statistical Reports (volumes 2, 12, 15, 25).

Argentina* (< 1%)	India	Russia (52%)*
Australia* (< 1%)	Italy	South Africa* (< 1%)
Belgium*	Japan (21%)*	Spain (< 1%)
Brazil	Korea, Republic of (5%)	Sweden
Chile (1%)*	Namibia	Ukraine (4%)
China, People's Republic of (< 1%)	New Zealand* (< 1%)	United Kingdom* (< 1%)
EU	Norway (6%)*	United States of America* (< 1%)
France (2%)*	Poland (4%)*	Uruguay (< 1%)*
Germany (< 1%)*		

* Denotes original signatory to CCAMLR.

Table 2

Text of CAMLR Convention Article II:

- "1. The objective of this Convention is the conservation of Antarctic marine living resources.
2. For the purposes of this Convention, the term 'conservation' includes rational use.
3. Any harvesting and associated activities in the area to which this Convention applies shall be conducted in accordance with the provisions of this Convention and with the following principles of conservation:
- (a) prevention of decrease in the size of any harvested population to levels below those which ensure its stable recruitment. For this purpose its size should not be allowed to fall below a level close to that which ensures the greatest net annual increment;
- (b) maintenance of the ecological relationships between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to the levels defined in sub-paragraph (a) above; and
- (c) prevention of changes or minimization of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades, taking into account the state of available knowledge of the direct and indirect impact of harvesting, the effect of the introduction of alien species, the effects of associated activities on the marine ecosystem and of the effects of environmental changes, with the aim of making possible the sustained conservation of Antarctic marine living resources."

evoked 'rational use' in opposition of various conservation measures, including the regulation of gill nets, which have high levels of bycatch, the proposed listing of toothfish on the Convention for International Trade in Endangered Species (CITES), and, most recently, the establishment of marine protected areas (MPAs) within the Convention Area. At a special 2013 intercessional meeting dedicated to discussing CCAMLR MPAs, for instance, China (CCAMLR's newest member, joining in 2007) opposed a proposed Ross Sea MPA and noted: "...since the term 'conservation' has a special meaning in Article II of the Convention which includes 'rational use' all State parties have legitimate right to conduct [a] fishery in the Convention Area in accordance with the objective

and principles of the Convention."¹ The Chinese delegation's statement indicates a clear interpretation of 'rational use' as meaning an unrestricted right to fish.

Given recent and increasing disagreements at CCAMLR meetings over the interpretation of 'rational use' (Table 3), the origins and intention of the term are explored here. The term 'rational use' is first examined in a historical context, then according to the intended meaning by a reading of the publicly available record of treaty negotiations, as well as how the term has been more recently interpreted and debated at Commission meetings.

2. Pre-CCAMLR uses of 'rational use'

Late nineteenth and early twentieth century scholars promoted the 'rational use' of forestry resources (e.g., [5]), and early uses were associated both with maximizing long-term economic gains (e.g., [6]) as well as goals of the nascent conservation movement to preserve natural resources and beauty for future generations. In this same period, the term was also used in the economic planning in Soviet states (e.g., [7]) and in constraining the rights of individuals, namely peasants, with regard to use of state-owned land [8].

In the second half of the twentieth century, 'rational use' was featured in international diplomacy. The 1959 European Free Trade Association included among its objectives the "rational use of resources." By the late 1960s, a new wave of environmental concerns with ideas of preservation in addition to conservation emerged. In 1968, UNESCO sponsored a conference and its report was titled "Conservation and Rational Use of the Environment" [9]. Of the seven objectives promoted, two features would become core to the CAMLR Convention. First, the report endorsed an environment-based approach to measuring the best use of natural resources and, second, it indicated the firm conviction that environmental management should be based on sound scientific research [9].

Not long after the UNESCO report, the principle of rational, scientific management of natural resources appeared prominently in meetings about managing Antarctic marine living resources. At the seventh Antarctic Treaty Consultative Meeting (ATCM, 1972), this principle appears in the negotiations and speeches from state delegates. The Soviet speech, the longest among the delegates, voiced serious concern for the welfare of the Antarctic Environment and used the term "rational use" in the same paragraph that called for ensuring "future generations should have the opportunity to enjoy the riches which our planet provides."²

The 1972 Antarctic Seals treaty included protections for the six

¹ CCAMLR SM-II (2013), para 3.34.

² Speech by his Excellency Mr. A. I. Ivantsov, Representative of USSR" at ATCM VII, 41–42 (1972), available at http://www.ats.aq/documents/ATCM7/fr/ATCM7_fr001_e.pdf

Table 3

Summaries and extracts of some key uses/interpretation of 'rational use' in CAMLR Convention negotiations and at Commission meetings.

Year	Details
1977	ATCM-9 Report § 10 includes an official draft recommendation, drawn from many state submissions. Extensive negotiations over CCAMLR occur at this meeting. The language in the draft recommendation closely matches the eventual language of CCAMLR.
1978	Final negotiations over language.
1980	CAMLR signed (see Table 1).
1982	There is no mention of 'rational use' at this first meeting of CCAMLR. Article II of the Convention text states: 1. The objective of this Convention is the conservation of Antarctic marine living resources. 2. For the purposes of this Convention, the term 'conservation' includes rational use . 3. Any harvesting and associated activities in the area to which this Convention applies shall be conducted in accordance with the provisions of this Convention and with the following principles of conservation..."
1985	During a discussion about gill nets: "There are no substantial gill net operations at present in the Convention Area, so that at this stage, prohibiting the use of gill nets as a preventative measure could unnecessarily interfere with the rational use of resources, one of the objectives of the Convention."
1987	The Working Group for the Development of a Conservation Strategy for Antarctic Marine Living Resources aimed to reach a common understanding of the term ' rational use ' in the convention text. They agreed that "this term would require progressive refinement as knowledge and understanding of the Antarctic marine ecosystem developed" and proposed the following: Harvesting and associated activities are to be conducted in accordance with the following principles of conservation: (i) maintenance of ecological relationships (ii) maintenance of populations at levels close to those which ensure the greatest net annual increment (iii) restoration of depleted populations (iv) minimization of the risk of irreversible change in the marine ecosystem. With these principles in mind the Working Group felt that rational use involved inter alia the following elements: (i) that the harvesting of resources is on a sustainable basis (ii) that harvesting on a sustainable basis means that harvesting activities are so conducted as to ensure that the highest possible long-term yield can be taken from a resource, subject to the general principles of conservation above (iii) that the cost-effectiveness of harvesting activities and their management is given due weight.
1994	Ukraine joins CCAMLR and noted: "Krill is an important food source for Ukrainians and Ukraine has carried out, and intends to continue to carry out, scientific research and rational use of Antarctic marine living resources."
2001	Argentina notes that icefish (<i>C. gunnari</i>) are depleted. "In the view of Argentina, current management methods for this species provide for its rational use but not for the recovery of the stocks."
2002	' Rational use ' evoked for why toothfish should not be listed on CITES. The Commission considered the proposal by Australia to list toothfish in CITES Appendix II. New Zealand supported this proposal as submitted. Nineteen members urged Australia to withdraw its proposal to CITES, and the proposal was withdrawn.
2003	Ukraine wanted to open up more exploratory fishing for toothfish (<i>Dissostichus</i> spp.) and is concerned about the procedure in setting catch limits. "Despite years of work, the number of measures, in which the uncertainty in respect of stock is quite high, is not being reduced but is growing. The Ukraine Delegation believes that this does not assist in attempting to achieve the objectives of the Convention, namely the conservation and rational use of Antarctic marine living resources."
2008	Japan noted: "a need to balance conservation with rational use in implementing MPAs in the Convention Area." "Argentina recalled that the CCAMLR objectives do not contemplate the sustainable use of resources but rather their conservation including rational use. It also stated its concerns, indicating that to increase catch limits would not constitute rational use of the resource, in light of the risks it would represent for this fishery in relation to the economic benefits that could be obtained in just one fishing season." "In Sweden's view, bioprospecting represents rational use of marine resources and CCAMLR Members should report bioprospecting activity in the CAMLR Convention Area to the Commission."
2009	China evoked 'rational use' as potentially compromised by MPAs. "The establishment of an MPA as a conservation measure should meet the objectives and requirements of CAMLR Convention, Article II. The balance of conservation and rational use must be maintained. The total network area of MPAs in the Convention Area should be limited to a rational proportion of the Convention Area so as not to compromise rational use ." Australia noted that, " Rational use does not mean that fishing vessels need to have access to the entire range of a stock. Given climate change and the Commission's commitment to understanding the impact of climate change on its ability to achieve these objectives, Australia believed that reference areas closed to fishing will be essential in understanding how to manage the rational use of Antarctic kill fisheries under such uncertain and changing circumstances." Coalition of Legal Toothfish Operators (COLTO; which has observer but non member status): "CCAMLR work and CCAMLR science should be based on facts and not be swayed by misleading information, sensationalism, or other motivations that may be acting against Article II of its Convention, where it explicitly recognizes that the term "Conservation" includes rational use ."
2010	More disagreement over ' rational use ' in relation to MPAs, e.g., "Japan is unable to accept the establishment of an MPA which prohibits rational use of fish resources without clear objectives and scientific justification."
2011	"The USA presented a scenario for an MPA in the Ross Sea... and noted its view that establishing an MPA to achieve these aims will constitute rational use ." "Norway stressed the importance of a balanced approach with regard to the provisions in a measure to establish an MPA. For Norway, sustainable, ecosystem-based, responsible fishing founded on science is a fundamental part of harvesting and harvesting is a fundamental part of Article II of the CAMLR Convention. Any suggestion that raises doubt of the definition of ' rational use ' as it is defined in Article II in the Convention will not be helpful and cannot be supported." Sweden "supported the establishment of the suggested MPAs. It also recalled a suggested definition of rational use found in the report of the Workshop on MPAs" (SC-CAMLR-XXX, Annex 6; at this meeting Professor Rogers, suggested a definition of ' rational use ': "The use of the resources of an ecosystem in such a way that the goods and services provided by that ecosystem are maintained in perpetuity along with the biological diversity and ecosystem structure on which they depend." "Argentina expressed its disagreement with the definition of ' rational use ' included in the report of the Workshop on MPAs (SC-CAMLR-XXX, Annex 6, paragraph 5.16), which was offered by one of the invited experts, since it considers inappropriate in the context of CCAMLR to limit this concept to the sustainable use of the resources and to the conservation of the ecosystem, if necessary, for the exploited populations. In its view, the objectives set out in Article II also apply to non-exploitable species as established in Article 1.2 of the Convention." "China welcomed the statements by Australia and France and encouraged the proponents to adopt a more explicit, and preferably, a statistical approach to deal with the impact on rational use (in the present context, the fishery) as done in other proposals." "Australia noted the considerable discussion to date regarding the balance between conservation and rational use in the establishment of MPAs, and recognized the need for the general conservation measure on MPAs to adequately reflect Article II to achieve the appropriate balance." Antarctic and Southern Ocean Coalition (ASOC; which has observer but non member status) evoked rational use in support of MPAs: "As Members are well aware, the objective set out in Article II is the conservation of Antarctic marine living resources, where the term conservation includes rational use , and plainly marine protected areas and marine reserves are entirely consistent with this objective. ASOC does not consider conservation and rational use to be two separate goals but as complementary and central aspects of CCAMLR's central objective."
2012	Ukraine: By introducing permanent restrictions on the exploratory fishery in certain areas, we have arrived at a point where it is only possible to fish in very localized areas. From an organization that should be developing methods for ensuring the rational use of marine living resources, CCAMLR has gradually turned into an organization focused just on their conservation. As we see it, if things continue in this way, the existing Convention will lose all reasonable meaning. It will then become necessary to talk about the termination of the Convention and the creation of a new one, or of a revision of the Madrid Protocol with the

Table 3 (continued)

Year	Details
	introduction into its terms of reference of marine areas in addition to terrestrial areas. This would not be the end of the world. We would just have to admit the fact and accept it.
2013	China made the following statement: "...since the term "conservation" has a special meaning in Article II of the Convention which includes " rational use ", all States parties have legitimate right to conduct [a] fishery in the Convention Area in accordance with the objective and principles of the Convention." "Uruguay holds a favorable stance towards the establishment of marine protected areas with the aim of achieving an adequate level of conservation and rational use of resources bearing in mind, as well, that it is in international waters."
2014	At this meeting, ' rational use ' comes up in relation to a shark finning ban and MPAs. Argentina evoked 'rational use in support of a ban on shark finning and noted "that discarding of a full shark in order to maintain the fins represent minimal use of a resource that is not rational." USA evoked rational use in favor of MPAs, as did several other countries. New Zealand stated: "Both our Russian and Chinese colleagues have raised concerns about the impact of the MPA on rational use . The proposal still facilitates rational use, through selection of boundaries that will have the least impact on fishing effort, while still meeting protection objectives. More fundamentally, it is worth recalling that the objective of CCAMLR under Article II is to achieve conservation of Antarctic marine living resources, which includes rational use. It does not read that conservation "is" rational use . Accordingly, the primary objective of CCAMLR is not about preserving existing fishing effort. So while we should seek to minimize impacts on rational use, this has to be balanced against other conservation and protection objectives." Australia noted: "The Commission has already determined that rational use does not mean the following: (i) it does not mean that unlimited catches can be taken from stocks – we have established catch limits (ii) it does not mean that fishing must be able to occur everywhere – we have closed areas (iii) it does not mean that fishing can be undertaken at all times – we have closed seasons. We believe the Commission can continue to harmonize fisheries with conservation of all Antarctic marine living resources in order to make fisheries a rational use . CCAMLR MPAs are a part of doing that." China: 'China also regrets that we cannot have good basis to move the two MPA proposals to drafting group for the following reasons: Firstly, the Convention remains the primary legal basis of the work of the Commission. Article II of the Convention provides that the objective of the Convention is conservation of Antarctic marine living resources, where conservation includes rational use ... Secondly, Article II of the Convention gives a special meaning to the term "conservation", where rational use is part and parcel of conservation for the purpose of the Convention. By doing so, the Convention strikes an adequate balance between preservation and rational use of Antarctic marine living resources. The Contracting Parties enjoy the right to conducting harvesting activities within the Convention area.

Antarctic seal species and the treaty's preamble (which does not have legal force) stated its aim "to promote and achieve the objectives of protection, scientific study and rational use of Antarctic seals". The treaty itself included bans on killing Ross seals and Southern elephant seals, establishment of three no-take reserves, and harvest rules for crabeater, leopard and Weddell seals (although no states have since exploited Antarctic seals).

In addition, a series of scientific workshops held in 1974 and 1975, sponsored by the President's Council on Environmental Quality, World Wildlife Fund-U.S., the Ecological Society of America, the Smithsonian Institution, and the International Union for the Conservation of Nature and Natural Resources, led to several key principles to guide "rational resource utilization and conservation," including ecosystem maintenance to maximize both consumptive and nonconsumptive values and present and future options, as well as minimize irreversible risk [10]. The workshop summary also noted that, "conservation can be considered as one facet of rational resource management, which may also cover activities intended to improve the resource or ameliorate damage resulting from previous misuse of it" [10, p. 21].

At the August 1976 meeting held in Woods Hole, USA, the Scientific Committee on Antarctic Research (SCAR) Group on the Living Resources of the Southern Ocean described the state of marine life and its utilization in the Antarctic. In a section labeled "conservation," the group requested that "arrangements should be made as soon as possible to ensure the conservation and rational utilization of these important resources" [11, p. 424]. Their proposed scientific program included as the first aim "to provide data and information for the conservation and wise management of the living resources of the Southern Ocean" [11, p. 424]. These examples show that the phrase was in the lexicon of resource management professionals, including those involved in the Southern Ocean, and hint at how it was interpreted. The SCAR efforts would culminate in the writing and signing of the Convention, and establishment of CCAMLR in 1982.

3. 'Rational use' in the treaty negotiation record

The precedents of 'rational use' are important but have no legal significance. The main way to interpret a treaty, as stated by the 1980 Vienna Convention on the Law of Treaties (article 31), is to first look to the "ordinary meaning" of the terms of the treaty, to be interpreted "in their context in the light of its object and purpose." This principle rule is constrained by the caveat: "A special meaning shall be given to a term if it is established that the parties so intended." Finally, if the principal means of interpretation are inadequate to fix the meaning of a term of the treaty, "recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion," either to confirm the plain meaning of the language in the Convention or to resolve either ambiguous language, or to disregard an interpretation that would lead to an absurd result.

The publicly available ATCM records highlighted much of the negotiations over the CAMLR Convention. These documents are available on the CCAMLR website under CCAMLR Foundation Documents³ as well as on the website for the Antarctic Treaty.⁴ This archive does not currently include records from the special consultative meeting in Canberra hosted by Australia, February 27th to March 6th 1978, although CCAMLR has made requests to members in locating these documents.

At the 1978 meeting, during which the Treaty text was finalized, the ninth ATCM (1977) included the first full draft prefiguring the CAMLR Convention (technically a draft "recommendation" that the Commission then chose to adopt) and contained the first use of 'rational use' in the negotiation record for which documents exist (CCAMLR website):

"The Working Group [on Marine Living Resources] agreed to include in its Report the understanding of the Group that the word 'conservation' as used in the draft Recommendation

³ <https://www.ccamlr.org/en/organisation/ccamlr-foundation-documents>

⁴ http://www.ats.aq/devAS/info_finalrep.aspx?lang=e&menu=2

includes rational use, in the sense that harvesting would not be prohibited, but the regime would exclude catch allocation and other economic regulation of harvesting.”⁵

The above text provides the most probative, though ambiguous, publicly available evidence with regard to the intended meaning of ‘rational use’. Clearly, parties to the Convention had no intent to concede any outright ban on fishing. However, it is not obvious that this language intended to prevent targeted bans or other restrictions on fishing, consistent with the principles of conservation as well as ‘rational use.’ A plain reading suggests that if fisheries were in a state of overexploitation, limitations on fishing would not only be allowed, but also warranted.

Statements by national delegations help illuminate any agreement that might have existed regarding the term ‘rational use’ in negotiation. At the same 1977 ATCM, the U.S.A. made a clear statement in favor of closing areas to fishing. In response, the Chilean delegation advocated for “the conservation of species or also their rational use”⁶ as a standard to be advanced under either the existing international framework of the Antarctic Treaty or a new convention. The Chilean response indicates that the term ‘rational use’ is set in opposition to a complete ban on fishing, proposed by the U.S.A., not in opposition to the regulation (or closure) of fishing in some places, at some times.

Some parties’ discussions of the Convention anticipate fishing, and they also called for broad regulation of fishing to ensure the long-term health of the environment and fishing stocks. In its draft proposal for the Convention, the Soviet Union invoked the “need of international statutory control” over the region and “balanced use” of Antarctic resources.⁷ Other parties to the negotiations, including France, South Africa, New Zealand, and Australia, are not recorded as making any reference, in favor or opposed, to the concept of ‘rational use’ or related terms (e.g., ‘balanced use’). The strongest statements in fact tended to come from states in geographical proximity to Antarctica, several of which possessed claims over the peri-Antarctic islands and the Antarctic continent. Concerns of these states included that unauthorized fishing not be seen as a slight to their claims and that overexploitation of the resources of the Southern Ocean not leave the region in a depleted or barren state (there were additional concerns, such as national security; e.g., [12]). The Argentine delegation made a statement that shows the nature and strength of these concerns, notable because it advocated for conservation in the strongest of language, and invoked ‘rational use’ in defense of its position:

“It is understandable, and thoroughly justifiable, that countries like Argentina, Chile, Australia and New Zealand, whose geographical situation is closer to the coasts of Antarctica, have a profound interest in conserving the living resources of the southern ocean. It is not by chance, therefore, that the four countries whose position on sovereignty is well-known wish to play a full part in the efforts directed towards achieving this conservation. It is for this reason that Argentina has a fundamental and profound interest in arriving at a really effective agreement on the rational utilization of the living resources of the sea and is called upon to play an active part in the relevant negotiations in due recognition of this interest and its particular geographical location.”⁸

Given that one of the biggest proponents of rigorous conservation standards used ‘rational use’ in its statement, it is an untenable legal position that all CCAMLR negotiators viewed ‘rational use’ as an unrestricted right to fish.

This research into the treaty negotiation record shows that ‘rational use’ on its own did not have a clear, consistent or objective meaning agreed by the parties. Rather, there is a consistent and long record of key states to the negotiations using ‘rational use’ as a term consistent with the broader goals of conservation articulated elsewhere in the Convention. Dr. Hofman [13], a member of the U.S. team that negotiated the CCAMLR treaty and, at the time was Scientific Program Director at the US Marine Mammal Commission, concluded that “...the meaning of the words ‘including rational use’ was clearly understood when the Convention was concluded and therefore should be understood in the same way today. That is, ‘rational use’ of living resources in the Convention Area is that, and only that which meets the principles of conservation provided in subsections a, b, and c of paragraph 3 of Article II.” (Table 2).

4. Interpretation of ‘rational use’ at CCAMLR meetings

According to Hofman [13], “the Convention was not intended to prohibit fisheries and associated activities provided they are designed and conducted to meet the principles of conservation set forth in paragraph 3 of Article II”, i.e., an ecosystem conservation approach that makes clear that protected areas are one of the possible management tools as laid out by the Convention. There was, according to Hofman [13], a consensus view on how rational use was defined, and it was laid out in Articles I and especially II in the CAMLR agreement. However, this qualified view of ‘rational use’ has not since been the consensus view of the term at CCAMLR meetings, especially during discussions of marine protected areas.

Since 1982, CCAMLR has annually discussed management of marine resources and needs unanimous consensus among all Member States to make decisions. Commission meetings are closed to the public, but some NGOs (e.g., the Antarctic and Southern Ocean Coalition) and industry groups (e.g., the Coalition of Legal Toothfish Operators) are allowed observer status. At these meetings, ‘rational use’ has been evoked most often as a ‘right to fish,’ often elicited in opposition to proposed Conservation Measures (Table 3). Disagreements over the interpretation of ‘rational use’ have recently increased, particularly during negotiations to adopt MPAs (Fig. 2).

The first evidence of tensions over interpretation of ‘rational use’ at the Commission occurred at the fourth meeting in 1985. In discussing gill nets, an unselective type of fishing gear that some states wanted to ban, it was noted that “there [were] no substantial gill net operations at present in the Convention Area” and that “prohibiting the use of gill nets as a preventative measure could unnecessarily interfere with the rational use of resources.”⁹ At the 1987 meeting, the Working Group for the Development of a Conservation Strategy for Antarctic Marine Living Resources “agreed that it would be useful to reach a common understanding for working purposes of the term ‘rational use’ as it is employed in Article II of the Convention” and developed a definition that included restoring depleted populations and minimizing the risks of irreversible changes (Table 3). It was also agreed that “this term would require progressive refinement as knowledge and understanding of the Antarctic marine ecosystem developed.”¹⁰

As more fishing states joined CCAMLR, the term ‘rational use’

⁵ ATCM-IX (1977) para 10.

⁶ <http://www.ccamlr.org/en/system/files/ANT-IX-30.pdf> Chilean doc. Section 3.

⁷ <http://www.ccamlr.org/en/system/files/ANT-IX-37.pdf> Section 3.

⁸ <http://www.ccamlr.org/en/system/files/ANT-IX-55.pdf> Sections (c) through (d). See also <http://www.ccamlr.org/en/system/files/ANT-IX-58.pdf> for further discussion of the Chilean position. (Draft convention submitted by Chilean delegation.)

⁹ CCAMLR IV (1985) para 22.

¹⁰ CCAMLR VI (1987) para 113.

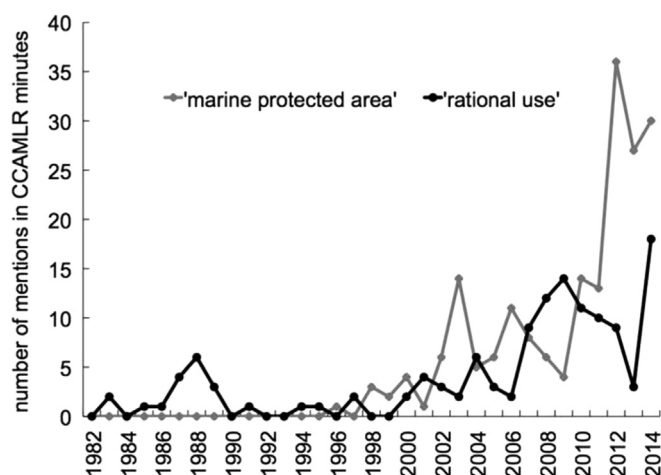


Fig. 2. The number of mentions of the terms 'rational use' and 'marine protected area' in the CCAMLR meeting minutes.

became a greater source of debate, despite the definition laid out for the term in Article II. In 1994, Ukraine joined CCAMLR and voiced the position: "Krill is an important food source for Ukrainians and Ukraine has carried out and intends to continue to carry out, scientific research and rational use of Antarctic marine living resources."¹¹ Note that Ukraine (previously operating as the Soviet Union) has been one of the most active fishing states in Antarctica (along with Japan, Norway, and South Korea; Table 1). After independence from the Soviet Union, Ukraine made related arguments in 2003 and in 2012 (Table 3).

In the mid-90s, MPAs gained prominence as a tool for marine conservation, including the restoration of depleted populations (e.g., [14]). Certain parts of CCAMLR's jurisdiction had already been closed to fishing (e.g., between 1985 and 1990, 12 finfisheries in 5 FAO Sub-Areas managed by CCAMLR, no longer being economically viable, were closed), but these areas were not referred to as MPAs. MPAs were first mentioned at CCAMLR in 1996 (Fig. 2), but discussions did not pick up until the 2000s, during which time research showed the benefits of MPAs to adjacent fisheries (e.g., [15]) and MPAs became a global priority. For example, in 2002, states at the World Summit on Sustainable Development (WSSD) committed to designating a global network of MPAs by 2012.

MPAs have grown in number and size within respective national EEZs, and some CCAMLR members (many being present at WSSD) are in favor of their establishment in the high seas portion of the CCAMLR area. Since 2002, CCAMLR has convened multiple bioregionalization and MPA planning workshops. In 2009, CCAMLR adopted its first MPA (south of the South Orkney Islands), but which did not interfere with current or prospective fishing [16], and formally restated its goal towards a network of MPAs by 2012.¹² However/despite this goal, CCAMLR has failed to adopt any further MPAs. The tensions about MPAs correlate with tensions over the term 'rational use' [17], because some CCAMLR members interpret 'rational use' as the right to fish, seemingly everywhere within the CCAMLR jurisdiction.

In 2012, France expressed regret that CCAMLR was "unable to reach consensus to abide by the Commission's undertaking to establish a representative network of [MPAs] in the Southern Ocean."¹³ That same year, the Ukraine voiced its disapproval for "introducing permanent restrictions on the exploratory fishery in certain areas," and continued: "From an organization that should

be developing methods for ensuring the rational use of marine living resources, CCAMLR has gradually turned into an organization focused just on their conservation. As we see it, if things continue in this way, the existing Convention will lose all reasonable meaning. It will then become necessary to talk about the termination of the Convention and the creation of a new one..."¹⁴

Over the course of negotiations, the proposed MPAs have been adjusted (e.g., reduced in size) in part to accommodate fishing interests. At the 2014 meeting, New Zealand (which proposed the Ross Sea MPA along with the U.S.) "[made] clear that displaced fishing effort will be able to be redistributed outside the MPA, with no overall reduction in take intended. The proposal also specifically provides for some fishing in areas included in the MPA (for example through the proposed Special Research Zone)."¹⁵ However, several members again evoked 'rational use' in opposition to this new proposal, and China's interpretation was particularly clear: "...rational use is part and parcel of conservation for the purpose of the Convention... The Contracting Parties enjoy the right to conducting harvesting activities within the Convention area."¹⁶

However, at the same 2014 meeting, 'rational use' was also evoked in support of a ban on shark finning. Argentina noted "that discarding of a full shark in order to maintain the fins represent minimal use of a resource that is not rational."¹⁷ Given that just one species of shark and two of spiny dogfishes occur only at the extreme northern edge of the Southern Ocean [18], general support for this Conservation Measure came easily, although the Measure was never adopted (China and Japan blocked it from going forward). The conversation around shark finning represented, however, a new interpretation of 'rational use', where the focus instead was on what is 'rational'.

5. What is 'rational' in Antarctica?

This research reveals ambiguities that have since arisen in the term 'rational use' as originally defined in the CCAMLR agreement, as laid out by Article II(3)(a–c). Despite what was agreed to in that Article, current parties to the CAMLR Convention no longer share any concrete understanding of the term, and the term has acquired greater complexity and scope compared to its original meaning. These disagreements are largely due to the views of fishing nations, many of which joined after CCAMLR's inception.

The record shows that the greater part of negotiations focused powerfully on concern for conservation and to prevent the dangers from unregulated overfishing [13]. The argument that 'rational use' was intended in the Convention to mean an unrestricted or unqualified 'right to fish' has no legal basis. Nowhere is there a statement that 'rational use' implies an implicit or unrestricted right to fish everywhere at all times, nor is there an endorsement of fishing at the cost of other objectives of the Convention. Furthermore, the term 'rational use' does not unambiguously limit the treaty's otherwise clear power to regulate fishing in the region.

To date, and especially recently, 'rational use,' though consistent with CCAMLR's philosophy of ecosystem-based fishery management, has hung like an albatross around CCAMLR's neck and has been used to thwart new conservation measures. Like scientific uncertainty, which is also evoked in ways that reflect social values [19], 'rational use' has become a value-laden term, but not a mandate to fish. As the values of CCAMLR members have shifted more in favor of fishing (fishing states are now the majority

¹¹ CCAMLR XIII (1994) para 13.2.

¹² CCAMLR XXVIII (2009) para 7.19.

¹³ CCAMLR XXXI (2012) para 7.92.

¹⁴ CCAMLR XXXI (2012) para 7.97.

¹⁵ CCAMLR XXXIII (2014) para 7.65.

¹⁶ CCAMLR XXXIII (2014) para 7.69.

¹⁷ CCAMLR XXXIII (2014) para 3.68.

in CCAMLR, outnumbering non-fishing states by 5:3; when the Convention was signed the ratio was 1:2; [16]) and less in favor of conservation, 'rational use' is interpreted, falsely, as the right to ignore Article II(3)(a–c) and to fish everywhere in Antarctic waters. Moving forward, CCAMLR might continue to focus on what is 'rational' in the Antarctic in today's context.

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References

- [1] H.J. Griffiths, Antarctic marine biodiversity – what do we know about the distribution of life in the Southern Ocean? *PLoS One* 5 (2010) e11683.
- [2] B.S. Halpern, S. Walbrige, K.A. Selkoe, et al., A global map of human impact on marine ecosystems, *Science* 319 (2008) 948–952.
- [3] W. Swartz, E. Sala, S. Tracey, et al., The spatial expansion and ecological footprint of fisheries (1950 to present), *PLoS One* 5 (2010) e15143.
- [4] D.G. Ainley, D. Pauly, Fishing down the food web of the Antarctic continental shelf and slope, *Polar Rec.* 50 (2014) 92–107.
- [5] B.E. Fernow, Considerations in gathering forestry statistics, *Pub. Am. Stat. Assoc.* 6 (1898) 155–168.
- [6] L.C. Gray, The economic possibilities of conservation, *Q. J. Econ.* 27 (1913) 497–519.
- [7] L.E. Kupinets, Sectoral development priorities in the context of the economy ecologization national policy, *Sci. Notes Taurida Natl. V.I. Vernadsky Univ.* 26 (1918) 226–242.
- [8] N. Gubsky, Economic law in Soviet Russia, *Econ. J.* 37 (1927) 226–236.
- [9] UNESCO (United Nations Educational, Scientific and Cultural Organization), Final Report of the Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere. Paris, France: UNESCO House (1969).
- [10] S.J. Holt, L.M. Talbot, New principles for the conservation of living resources, *Wildl. Monog.* 58 (1978).
- [11] SCAR, SCAR Bulletin No. 55, January 1977. *Polar Rec.* 18(115) (1977) 409–426.
- [12] K. Dodds, *Geopolitics in Antarctica: views from the Southern Oceanic Rim*, John Wiley & Sons, Chichester, 1997.
- [13] R. Hofman, The Intent of Article II of the CAMLR Convention. Discussion paper for Sessions Two and Three, CCAMLR Commission Circular 15/01, CCAMLR Secretariat, (2015) (http://www.asoc.org/storage/documents/Meetings/CCAMLR/symposium/Official_version_Article-II-of-the-CAMLR-Convention-ASOC.pdf).
- [14] T. Agardy, Advances in marine conservation: The role of marine protected areas, *Trends Ecol. Evol.* 9 (1994) 267–270.
- [15] C.M. Roberts, J.A. Bohnsack, F. Gell, et al., Effects of marine reserves on adjacent fisheries, *Science* 294 (2001) 1920–1923.
- [16] C.M. Brooks, Competing values on the Antarctic high seas: CCAMLR and the challenge of marine-protected areas, *Polar J.* 3 (2013) 277–300.
- [17] C.M. Brooks, D.G. Ainley, Fishing the bottom of the earth: the political challenges of ecosystem-based management, in: K. Dodds, A.D. Hemmings, P. Roberts, (Eds.) *Handbook on the Politics of Antarctica*, 2015 (In Press).
- [18] J.T. Eastman, *Antarctic Fish Biology: Evolution in a Unique Environment*, Academic Press, San Diego, 1993.
- [19] D. Jamieson, scientific uncertainty and the political process, *Ann. Am. Acad. Polit. Soc. Sci.* 545 (1996) 35–43.