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**Critical Literature Review  
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***Antarctica's new Marine Area – Why did it take so long?***

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**Abstract:**

The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) announced the Ross Sea Marine Protected Area (MPA) in October 2016. This was after some years of debate and discussion. During this time there was some disquiet amongst non-government organisations (NGOs) and the science community that they were losing faith in the ability of CCAMLR to progress the Ross Sea MPA. The MPA establishment is discussed in this review to provide an understanding as to why it took so long. The background and composition of CCAMLR is reviewed. Given the complexities of geopolitics, the compromises required of member states with different viewpoints to reach consensus on the Ross Sea MPA it is understandable that the original Ross Sea MPA proposal was modified and took years to be announced. Further research is needed to ascertain if the compromises needed to achieve the MPA adversely affect the Ross Sea region's rich ecosystem.

# Contents

<b>Introduction</b> .....	<b>1</b>
Brief history of Marine Protected Areas.....	1
Antarctic Treaty System .....	2
Natural resources of the Ross Sea.....	2
Commission for the Conservation of Antarctic Marine Living Resources.....	3
Background to the Ross Sea MPA .....	4
<b>Discussion</b> .....	<b>5</b>
Complexities: Increased member states, world political stage, NGOs.....	5
Compromise: First proposal from the USA and NZ, rationale use .....	8
Consensus.....	11
<b>Conclusion</b> .....	<b>12</b>
<b>References</b> .....	<b>14</b>

## List of Figures

Figure 1: CCAMLR Convention Area (CCAMLR, 2016a).....	3
Figure 2: Overview of catch per country in the CAMLR Convention area. ....	6
Figure 3: MPA scenarios developed by the United States and New Zealand for the Ross Sea and presented to the Scientific Committee in 2011 (A; based on Delegation of New Zealand 2011 and Delegation of the United States 2011) and the joint proposal presented to CCAMLR in July 2013 (B; NOAA 2013) (Brooks, 2013).....	9
Figure 4: The Ross Sea region marine protected area, including the boundaries of the General Protection Zone, composed of areas (i), (ii), and (iii), the Special Research Zone (SRZ), and the Krill Research Zone (KRZ). From the Conservation Measure 91-05 (2016) Ross Sea region marine protected area (CCAMLR, 2016b).....	10

## Introduction

In 1982 the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) was established to conserve marine life in the Antarctic (CCAMLR, 2016a). After years of discussion and debate, in October 2016 the participating states agreed to establish the world's largest marine protected area (MPA) of about 1.55 million km<sup>2</sup>. This concept was promoted by New Zealand and the United States of America. The agreement was seen as a diplomatic coup for the New Zealand Government (Davison, 2016) and received worldwide media coverage. But why did it take until 2016 for this Marine Protected Area to be achieved?

The Ross Sea MPA is the culmination of over a decade of attempts to conserve the highly valued marine ecosystems of the Antarctic region and Southern Ocean. To understand why this significant protection order has taken so long, one needs to examine the background, state relationships, dynamics and drivers of the key players.

### Brief history of Marine Protected Areas

Conservation of places of importance in Western culture gained traction following concern of damage to natural areas in the 19<sup>th</sup> century. The first national park (Yellowstone) was established in the United States of America in 1872 and New Zealand's first national park, Tongariro, in 1887 (DOC, n.d.). Interest in the protection of marine resources lagged behind terrestrial protection. The first official sanctioned area of ocean to be protected is thought to be the Fort Jefferson National Monument in Florida in the 1930s (Garcia, 2014). The international desire to protect marine areas had little impetus until the period of 1960s to '80s. The 1962 World Congress of National Parks gave special attention to marine conservation and the follow-up meeting two decades later called for the incorporation of marine, coastal and freshwater sites into the worldwide network of protected areas (IUCN as cited in Gubbay, 1995).

## Antarctic Treaty System

The Antarctic Treaty System (ATS) was formed by 12 states which had been active in the Antarctic and Southern Ocean during the International Geophysical Year (IGY) 1957-58 with the aim of providing a platform for international collaboration, understanding and conservation. One of the main concerns of the time was the potential Cold War rivalry between nations claiming territory in the Antarctic region (Secretariat of the Antarctic Treaty, 2011).

Even though the ATS did not specify protection of marine resources at its outset it did provide the framework for this to occur given the natural environment it was established to preside over.

## Natural resources of the Ross Sea

The resources of the Southern Ocean have been exploited for as long as people have been able to get to the deep south — for more than two centuries. The seas are naturally rich and diverse, with organisms ranging from megafauna to microorganisms (Hemmings, 2015; Rogers, 2012). Despite the remoteness and difficulty of harvesting; whales, fur seals, elephant seals, penguins and fish have all been targeted to a greater or lesser extent. Some species were hunted almost to extinction (Brooks, 2013; D. Miller, 2015). In the 1970s commercial fishing using modern methods saw severe depletion of fin species such as marbled rockcod (*Notothenia rossii*) to such an extent that the numbers have still not recovered (D. Miller, 2015). Commercial fishing around this time also turned to harvesting Antarctic krill (*Euphausia superba*), a small zooplankton invertebrate at the bottom of the food chain that animals such as penguins, seals and whales rely on for a food source. As a consequence of the earlier plunder, the growing commercial interest in krill, and the concern of potential ecological damage, an international treaty, the Convention on the Conservation of Antarctic Marine Living Resources (CAMLR Convention) was established under the ATS banner (Wenzel et al., 2016).



One of the ways CCAMLR has chosen to protect natural resources within its mandate is to establish Marine Protected Areas (MPAs) in key areas. The Ross Sea region was identified as one of the most worthy of protection (Brooks, 2013).

## Background to the Ross Sea MPA

CCAMLR started discussing marine protection of specified areas in 1999 and was given added impetus by the 2002 World Summit on Sustainable Development an objective of which was to achieve a representative network of MPAs by 2012. The 2005 CCAMLR Southern Ocean MPA workshop set about designating MPAs to ensure the conservation of biodiversity and maintenance of whole ecosystems (Wenzel et al., 2016).

The first MPA in the 'high seas' (ocean waters not legally claimed by any nation) was announced by CCAMLR in 2009. This was the South Orkney Islands Southern Shelf MPA (CCAMLR, 2009) This MPA was not without problems and the need to smooth the waters for subsequent MPAs was recognised. In 2011 an MPA workshop was held and resulted in production and adoption of a conservation measure (CM 91-04) that provided an explicit framework for setting up CCAMLR MPAs. This included that CCAMLR "MPAs shall be established on the basis of the best available scientific evidence, and shall contribute, taking full consideration of the CAMLR Convention" (Grant, Hill, & Fretwell, 2013) where conservation includes rational use, to the achievement of the protection of representative examples of marine ecosystems, biodiversity and habitats at an appropriate scale to maintain their viability and integrity in the long term. (CCAMLR, 2011)

The idea of an MPA for Ross Sea has been around as long as the concept of MPAs. The area was particularly significant given its comparatively pristine state, significant natural resources and scientific value. But after numerous CCALMR meetings, scientific reports and NGO pressure, the Ross Sea MPA was still not progressed. Was this rate of progress acceptable given the claim of many including from highly respected scientist that this was "the last ocean on Earth where an intact, open ocean ecosystem still exists with all its flora and fauna still present" (D Ainley cited in The Editors, 2012).

## Discussion

From the background outlined above it is clear that an MPA in the Ross Sea had been desired for more than a decade and with the establishment of CCAMLR there was a mechanism in place to legalise an MPA. The following section looks at why it took until 2016 to achieve this, what the complexities for CCAMLR were, the impact of the need for consensus and for compromise.

### Complexities and external pressures

Both the ATS and CCAMLR express a culture of cooperation. Since the formation of CCAMLR participating states have met, discussed common issues, set up reporting systems and produced conservation measures. Some of these actions have been seen as successful and received praise from around the world, but there has also been some criticism in recent years that conflict over setting up MPAs could threaten the basis of CCAMLR (Brooks et al., 2016). Antarctic issues cannot be dealt with in isolation from the rest of the world and this makes for a complex situation. Part of this complexity is due to the increasing number of states which have membership with CCCAMLR.

Prior to CCAMLR unregulated fishing was widespread and destructive (D. Miller, 2015). Many nations took advantage of the bountiful southern seas for significant economic gain. The diagram (Figure 2) shows the increasing number of countries involved in fishing in the CCAMLR area and the commercial value to that country.

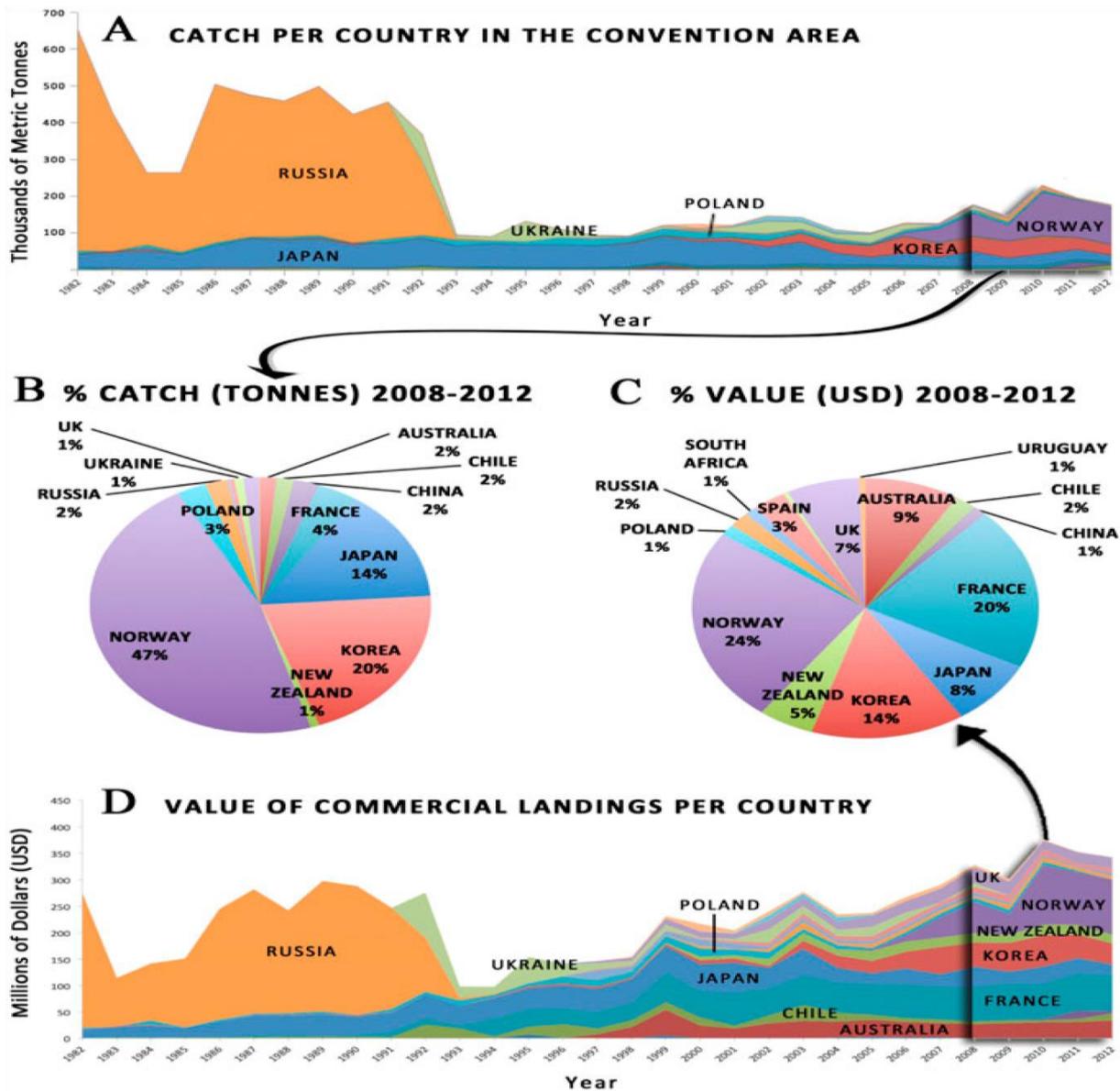


Figure 2: Overview of catch per country in the CAMLR Convention area.

Total commercial catch of krill, icefish and toothfish (combined) per country since CCAMLR came into force (1982–Proportion of catch per country during last five years (2008–2012; B). Proportion of the financial value gained per country harvesting toothfish, krill and icefish (combined) during the last five years (2008–2012; C). Financial value in millions of dollars gained per country harvesting toothfish, krill and icefish in the CAMLR Convention Area (1982–2012; D). Russia includes the current-day Russia and the former USSR. Colours represent the catch per country. Member States with less than 1% (for B-C) and less than 2% (for A & D) of catch for the time period are not labelled. Data source: CCAMLR Statistical Reports (Volumes 2, 12, 15, 25). (Brooks, 2013)

Not only is the number of countries significant, but also who they were had impact on the MPA negotiations. Eleven countries have acceded to the CAMLR Convention joining the original 25 members. New member states may have different agendas and possibly

have not shared the same relationships as the longstanding members. For example it was not known if China and some other countries had been actively engaged with the MPA's debate prior to the Hobart 2012 meeting as it is likely some would have been (The Editors, 2012). This meeting was not successful in advancing the Ross Sea MPA.

It is unlikely that any international issue can be resolved without reference to the current geopolitical context. This was played out with Ukraine normally supporting Russia which stalled progress during the Ross Sea MPA debate at the 2013 meeting (Brooks, 2013). When Russia made military incursions into Ukraine, the relationship between these two states changed and Ukraine was eager to side with Western states.

There have been strong expressions for support for the Ross Sea MPA from key world players. The USA was one of the proponents of this MPA. US Secretary of State John Kerry expressed strong sentiment: "I regret that the ... CCAMLR was not able to reach agreement ... but we'll soon get another bite at the apple ... there's simply no comprehensive effort to protect Earth's most critical resource that doesn't include an equally comprehensive effort to create marine protected areas" (Kerry J cited in Crook, 2013).

Also obfuscating the situation is the role of fishing bodies and non-government organisations (NGOs). Member states are the decision makers within CCAMLR, but the role and influence of NGOs and public opinion should be recognised. My assumption is that pressure often from lobby groups increased the demands on delegates and required more time to resolve issues, both domestically and internationally. There are powerful fishing groups, such as Coalition of Legal Toothfish Operators (COLTO), organisations and individuals all pushing for their preferred outcomes. The Antarctic Ocean Alliance (AOA) has actor Leonardo DiCaprio campaigning: "I join with millions around the world in calling for CCAMLR to protect key Antarctic marine habitats, while they are still intact and thriving." (DiCaprio, n.d.). Movies such as "The Last Ocean", produced by Peter Young, have been seen by thousands around the world. Even though the Ross Sea MPA is in an area that most people will never see, the action of NGOs has brought the issues to public attention. The role of social media and advocacy needs to be acknowledged in shedding light on, and bringing pressure to bear on CCAMLR to progress MPAs and also contribute to the complexity of the role of the delegates.

CCAMLR has been praised for working with NGOs and the fishing industry that attend CCAMLR meetings (D. Miller & Slicer, 2014). These stakeholders are affected by the outcomes of decisions and to extrapolate, I concur that having all the parties around the table is going to provide a more successful outcome even if it makes for increased complexity.

The issue of illegal fishing also has the potential to compromise the success of MPAs. This issue is not fully explored here but will have significance on the success of the Ross Sea MPA.

**Compromise: First proposal from the USA and NZ, rationale use**

As CCAMLR requires consensus, compromise is a handy, albeit often slow, vehicle for agreement. This was played out between the United States of America and New Zealand. They had originally submitted two different boundaries for a Ross Sea MPA. The USA wanted to displace more of the commercial fishing than New Zealand desired (Figure 3A). After heated discussions (N. Gilbert, personal communication, December 2, 2016) compromise was reached with a joint proposal (Figure 3B)

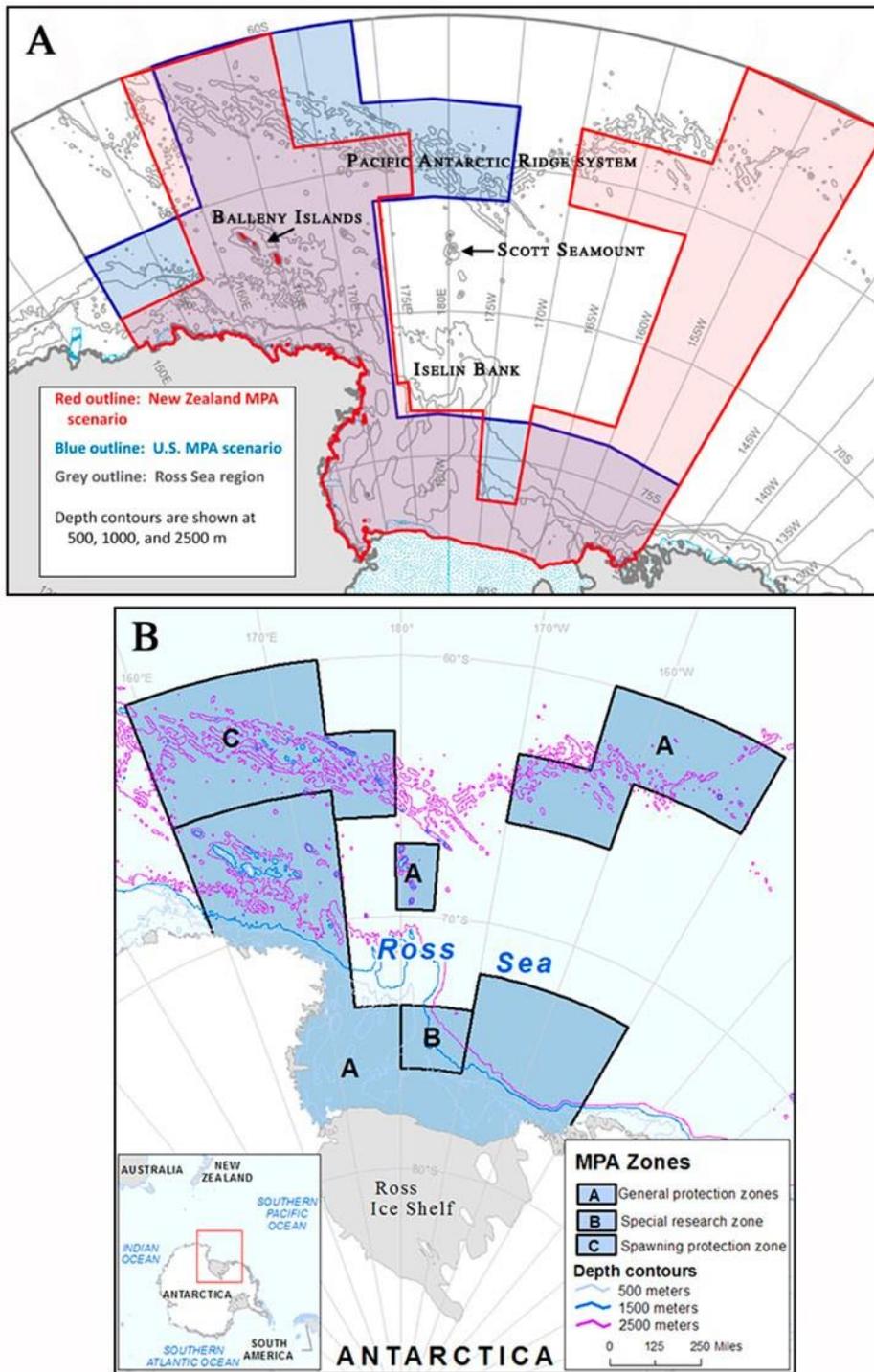


Figure 3: MPA scenarios developed by the United States and New Zealand for the Ross Sea and presented to the Scientific Committee in 2011 (A; based on Delegation of New Zealand 2011 and Delegation of the United States 2011) and the joint proposal presented to CCAMLR in July 2013 (B; NOAA 2013) (Brooks, 2013).

Further compromise was made after agreement on the 2013 joint proposal with further alterations to the protection and research zones. The boundary as depicted in the Conservation Measure (Figure 4) following the October 2016 meeting shows the compromise. It is questionable whether these alterations support the 'precautionary

approach' advocated by CCAMLR, and although they took time they did allow the Ross Sea MPA to progress.

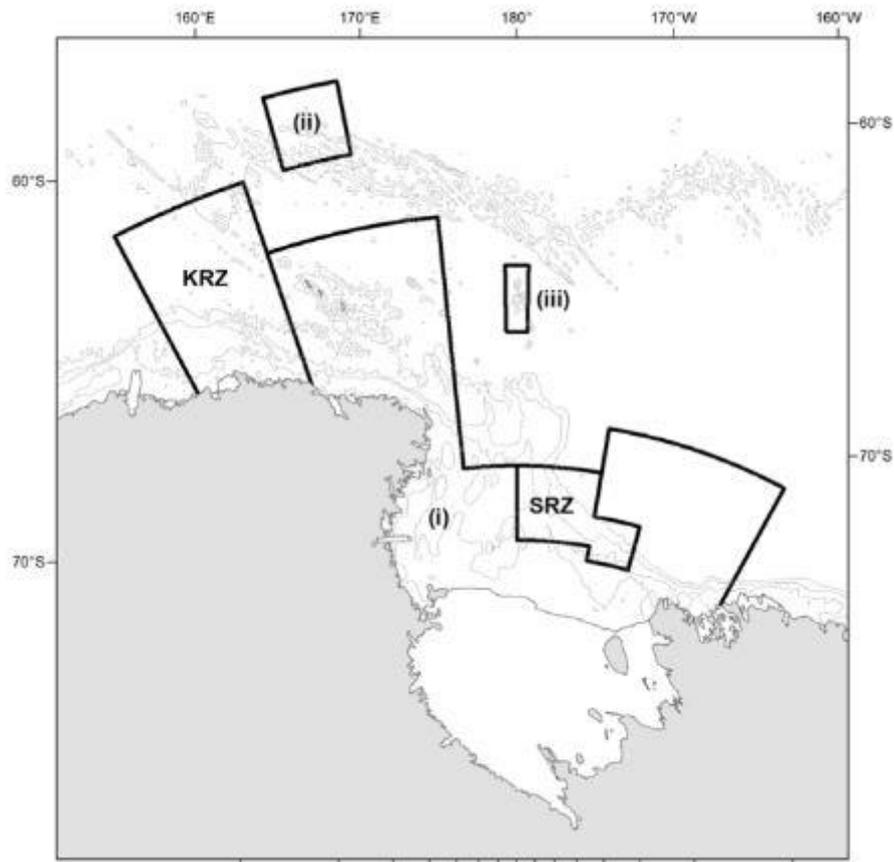


Figure 4: The Ross Sea region marine protected area, including the boundaries of the General Protection Zone, composed of areas (i), (ii), and (iii), the Special Research Zone (SRZ), and the Krill Research Zone (KRZ). From the Conservation Measure 91-05 (2016) Ross Sea region marine protected area (CCAMLR, 2016b).

Another example of compromise is the interpretation of the term “rational use”. CCAMLR objectives are an attempt to protect both fishing rights and biodiversity. Given the number and the different backgrounds of the CCAMLR member states it is not surprising that to establish a marine protected area would potentially see some restriction to fishing, and would raise concerns. Of interest, is that countries with the largest fishing industries were not the only ones with concern (Brooks, 2013). China, even though it has to date not landed as much as some other countries, stated in the 2013 intercessional MPA meeting ‘...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.’ Russia also had concern (Jacquet, Blood-

Patterson, Brooks, & Ainley, 2016). Other states with a more Western traditional view of conservation saw this differently. This debate in effect stalled progress on the Ross Sea MPA at that time until compromise could be reached. The alterations to the boundaries (Figure 3 & 4) appear to have been a result of the compromise between biodiversity protection and extraction.

Whether such a compromise can protect ecosystems in the high seas is a challenge for the CCAMLR signatories for the future. The 'Tragedy of the Commons' concept is well known and casts doubt on whether sustainable fisheries outside of an internationally accepted and guarded zone are achievable.

## Consensus

The unique governance structure of CCAMLR is seen as both a challenge and an opportunity in regard to establishing MPAs (Wenzel et al., 2016). With decisions being made by consensus, the Commission has set itself a difficult task, seeking agreement from states with potentially very different viewpoints. This was demonstrated when delegates representing Russia, China and Ukraine questioned whether CCAMLR had the legal mandate to set up the Ross Sea MPA. It can be suggested that perhaps this was a stalling method in an attempt to protect economic potential, or possibly there were other reasons to raise this query. It has also been suggested that fishing nations could have been concerned with the high number, and large size of proposed MPAs (The Editors, 2012). Whatever the reason for raising the query because consensus is needed it slowed progress and took time to resolve. Russia and China are significant world powers and attempting to progress the Ross Sea MPA without their cooperation would be very difficult. The time taken to resolve this issue was not only justified but necessary.

Another disagreement that could have been more quickly resolved if consensus was not necessary was over the time frames for establishment of the Ross Sea MPA. There was much debate on how long should the Ross Sea MPA be in place (Brooks et al., 2016).

Differing timeframes from indefinite to less than 10 years were discussed, before reaching consensus of 35 years (CCAMLR, 2016b).

After the announcement of the Ross Sea MPA, acknowledgment of the consensus and difficulty getting to it was made by NGOs. According to Andrea Kavanagh, who directs Antarctic and Southern Ocean work for The Pew Charitable Trusts “It’s a breakthrough in getting the Antarctic nations to agree on any reserve after years of failed efforts and past resistance from Russia, in particular. It’s also the first time a group of countries have got together to protect such a large swath of ocean on the high seas...” (Perry, 2016).

The benefit of consensus was also noted by Callum Roberts, a professor of marine conservation at the University of York in England, who said that the reserve should be effective because it has a group of countries that are committed to protecting it (Perry, 2016)

At the October 2016 CCAMLR meeting, to the surprise of some (A. Hemmings, personal communication, December 5, 2016), the signatories were able, despite complexities, to reach consensus albeit with significant compromise. The Ross Sea Marine Protected Area of 1.55 million km<sup>2</sup> was announced. This was after more than a decade of discussion and after some key ecological areas were omitted to allow for commercial fishing extraction and the time frame was agreed to be 35 years duration (CCAMLR, 2016a).

## Conclusion

The Ross Sea MPA has been declared by CCAMLR after years of consultation and discussion. The question of why the Ross Sea MPA was so long in the making is answered by the geopolitical context, the work and structure of CCAMLR and the need for consensus. Thus the time frame is understandable. Rather than being a straightforward agreement on where to let the natural forces reign with no fishing areas, discussions were set in a field of complexity and compromise. Given the different states involved and their points of view, it is a credit to the signatories that the Ross Sea

MPA was announced in October 2016. It is acknowledged that compromises were needed. The area of the Ross Sea MPA is less than was initially proposed and not all of it is a no-take area. The MPA does pose some significant restrictions and conditions in an attempt to protect natural values for the long term.

To measure the success of the Ross Sea MPA, further monitoring and research on fishing impacts and the ecosystem are needed. The details of implementing the Ross Sea MPA are still to be agreed to by CCAMLR member states. Illegal fishing still remains a significant issue and more information on this and the effects of the Ross Sea MPA will be needed to guide what future management will be appropriate.

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