CCAMLR

Commission for the Conservation of Antarctic Marine Living Resources
Commission pour la conservation de la faune et la flore marines de l'Antarctique
Комиссия по сохранению морских живых ресурсов Антарктики
Comisión para la Conservación de los Recursos Vivos Marinos Antárticos

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Climate change and the Southern Ocean: "Code Red" for CCAMLR

Submitted by ASOC

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Abstract

CCAMLR is in a leadership position with respect to the international community and the global biosphere when it comes to climate action in the Southern Ocean, and CCAMLR's climate action should reflect that responsibility. In practice, there is a considerable mismatch between the urgency of addressing climate change and the pace of climate action in the Southern Ocean. In this paper ASOC makes recommendations to CCAMLR to improve its climate action record including:

- agreeing to a revised CCRWP for CCAMLR during the 2021 Scientific Committee meeting, including agreeing to a timeline to ensure full implementation of the CCRWP by 2030;
- establishing a subsidiary group in 2021 to provide annual policy advice to CCAMLR on climate change, including with respect to fisheries management, spatial protections, and any other climate issues as they arise.

Furthermore ASOC notes the climate action proposals made in CCAMLR-40/19; CCAMLR-40/23 Rev. 1; SC-CAMLR-40/08; SC-CAMLR-40/09; and CCAMLR-40/24 and recommends that CCAMLR-40 adopt them.

Overview

Recent international reports highlight the significance of the global climate and biodiversity crisis (IPCC 2019, IPBES 2019), with climate change identified as one of the major drivers of biodiversity loss. Five key Southern Ocean processes are at risk due to climate change impacts – increases in ocean temperatures, shifts in sea ice and ice shelf dynamics, changes in ocean chemistry, changes to the biological carbon pump, and shifting ecosystems and species dynamics. These changes are already having cascading effects at regional and global scales and will continue to do so, with widespread socioeconomic consequences. (Capurro et al 2021).[1]

The most recent contribution of the International Panel on Climate Change (IPCC) confirmed the unequivocal human influence warming the atmosphere, ocean and land, resulting in widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere.[2] Many changes due to past and future greenhouse gas emissions are irreversible for centuries to millennia, especially changes in the ocean, ice sheets and global sea level (IPCC 2021).

The IPCC report's findings were described by UN Secretary General António Guterres as a "Code Red for humanity" (UN News 2021).

Antarctic research on climate change is thriving, including through several significant SCAR research multi-year programs starting in 2021. However, policy responses from Antarctic Treaty System bodies have so far not reached their full potential.

In this paper ASOC summarises recent climate action from these bodies and makes recommendations to CCAMLR to improve its climate action.

[1] On March 30, 2021, the Wilson Center's Polar Institute and The Pew Charitable Trusts brought together leading scientists for virtual discussions about the relationship between climate change and the Southern Ocean. The panel considered questions about the near term discrete management actions that CCAMLR could take to address climate impacts in the Southern Ocean; and about the global consequences of Southern Ocean climate impacts and related management actions.

[2] First part of the IPCC's Sixth Assessment Report, *Climate Change 2021: The Physical Science Basis*, the Working Group I contribution to the Sixth Assessment Report (6 August 2021).

Recent ATCM climate action
In 2015, the Antarctic Treaty Consultative Meeting (ATCM) agreed on a Climate Change Response Work Programme (CCRWP) which is currently being implemented. ATCM XLIII in June 2021 noted with concern the conclusions of the Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) from 2019, as well as climate change and ocean acidification updates provided by SCAR (2021a, 2021b) (ATCM XLIII Final Report, paragraphs 201-228), and adopted ATCM Resolution 8 (2021) *Antarctica in a changing climate* which recommended their Governments to:

- ensure that national delegations are aware of the consequences of climate change for Antarctica during the upcoming UN Framework Convention on Climate Change Conference of the Parties in November 2021;
- seek to avoid or mitigate additional identified non-climatic stresses to the Antarctic terrestrial and marine environment, including its biodiversity and ecosystems, in order to increase resilience to climate change effects; and
- support climate change research and communicate its implications for Antarctica, both within and outside the Antarctic Treaty System.

ASOC welcomed this Resolution and expressed its hope that it would have a real world impact. Further, ASOC urged Parties to move quickly to improve climate resilience in Antarctic terrestrial and marine ecosystems and cut emissions from Antarctic operations, as well as ensure that their national policies reduced carbon emissions to safe levels.

Although the CCRWP currently falls short of the magnitude of ambition required to address climate change (ASOC, 2021), it provides a framework for international climate action and should be enhanced in the near future, and followed through with a corresponding CCRWP for CCAMLR.

Recent CCAMLR climate action
CCAMLR has a patchy track record when it comes to climate action, and has so far been unable to agree on its own version of a CCRWP, originally introduced in 2018 (Goldsworthy and Brennan 2021). This is despite CCAMLR's subsidiary bodies and many of its Members carrying out significant science to support decision making on climate change and conservation.

In 2009, CCAMLR adopted Resolution 30/XXVIII *Climate change*. This Resolution outlines CCAMLR's role in climate action and calls for more climate research and dissemination of findings. The Resolution is still relevant, but – eleven years later – it needs to be updated to match the urgency of the climate crisis. In addition, CCAMLR Conservation Measures on marine protected areas (MPAs) and the establishment of Special Areas for Scientific Study in newly exposed marine areas following ice shelf retreat or collapse are examples of CCAMLR's potential for climate action.[3]

SC-CAMLR-39 in 2020 was not able to formulate clear advice on some key issues for which significant deliberations were expected, including climate change (CCAMLR 39 Final Report. para 5.8). CCAMLR-39 itself was not able to agree on any significant climate action, despite many Members' statements that this was a priority issue for them. For instance, there was no agreement on the proposal to designate the newly exposed marine area adjacent to Pine Island Glacier (Subarea 88.3) as a Stage 2 Special Area for Scientific Study (SASS), nor on the suggestion to extend the period of the Stage 1 designation for an additional year (CCAMLR 39 Final Report. P8.12).

CCAMLR's climate response started by requesting more climate information, then was implemented through individual Conservation Measures. However, the effort of developing comprehensive framework such as the CCRWP has not reached any conclusions. As a cross-cutting issue, climate change has been mainstreamed in national policies of many (if not all) CCAMLR members. A

[3] Resolution 30/XXVIII (2009) on climate change; CMs 91-03 (2009) and 91-05 (2016) designating two MPAs; CM 91-04 (2011) on a MPA establishment framework; and CM 24-04 (2016) on time limited scientific study of habitats exposed by ice shelf retreat or collapse for some statistical subareas.

comprehensive framework could be greatly helpful to safeguard the climate and conservation objectives at the same time.

In 2014 ASOC suggested that CCAMLR incorporates climate change into decision making, initially proposing the use of climate change statements (ASOC 2014). Of note is that this was the only paper submitted under this agenda item that year, even though climate change and ocean acidification have long been recognized as significant threats to Southern Ocean ecosystems.

Climate change is now in the agenda of CCAMLR and of SC-CAMLR, but it has not fully developed into a comprehensive framework to agree on and implement climate change policy. To the extent that there are frameworks in place for CCAMLR to take action relevant to climate change (e.g. CM 91-04 or CM 24-04), these are not being fully implemented because of lack of consensus.

The case for urgent CCAMLR climate action

Under the CAMLR Convention, CCAMLR has a mandate to conserve marine life in approximately 10% of the global ocean. The global biodiversity and climate crisis outlined in recent international reports (IPBES 2019, SROCC 2019, IPCC 2021) underscore the responsibility of CCAMLR in contributing to climate change response and mitigation. The links between climate change impacts and fisheries management should be recognized in CCAMLR's decision-making, if the CAMLR Convention's objective and obligations are to be fully met (e.g. Cavanagh et al 2021; Goldsworthy and Brennan 2021).

Furthermore, CCAMLR Members produce a considerable portion of global CO_2 emissions. According to a recent European Union report "…in 2019 China, the United States, India, the EU the UK, Russia and Japan, which are the world's largest CO_2 emitters, together accounted for 51% of the population, 62.5% of global Gross Domestic Product, 62% of total global fossil fuel consumption and emitted 67% of total global fossil CO_2" (Crippa et al 2020). If the remainder of CCAMLR Members are included to this list, the total global fossil CO_2 generated by CCAMLR Members for 2019 is of over 73% (our calculations).[4] Several CCAMLR Members have adopted ambitious emissions reductions targets, and have publicly declared their commitment to meaningful action on climate (Bourke et al. 2021).

These considerations place CCAMLR in a leadership position with respect to the international community (and the global biosphere) when it comes to climate action in the Southern Ocean, and its actions should reflect that responsibility. In practice, there is a considerable mismatch between the urgency of addressing climate change and the pace of climate action in the Southern Ocean.

ASOC is pleased that several documents submitted to CCAMLR in 2021 by various groupings of Members (representing over 65% of CCAMLR's membership) recognize the need for CCAMLR climate action, and offer several concrete proposals.[5] ASOC hopes that CCAMLR-40 agrees on these proposals. In the meantime, paraphrasing the UN Secretary General, the climate crisis is not only "Code Red" for humanity, but also for CCAMLR.

Conclusions and Recommendations

Emission reductions in accordance to the 2015 Paris Agreement, of which all CCAMLR Members are signatories, must be at the core of any strategy to address climate impacts and positive climate feedback mechanisms resulting from Southern Ocean processes.

[4] Based on global fossil CO_2 data for countries compiled by Crippa et al 2020.

[5] Proposals outlined in CCAMLR-40/19 (SASS Stage 2 for the Pine Island Glacier); CCAMLR-40/23 Rev. 1 (new Resolution on climate change); SC-CAMLR-40/08 (integrating climate change research into the work of SC-CAMLR - TOR for the e-Group "Climate change impacts & CCAMLR"); SC-CAMLR-40/09 (participation in CEP development of an action plan for emperor penguins); and CCAMLR-40/24 (establishment of a permanent Working Group on Climate Change and updating Resolution 30/XXVIII to reflect IPCC's findings).

Global-level climate action should be complemented with immediate climate action in the Southern Ocean (e.g. Capurro et al 2021; Cavanagh et al 2021; Goldsworthy and Brennan 2021), including the establishment of Marine Protected Areas to enhance ecosystem resilience, updating management strategies for fisheries to consider climate impacts, and ensuring sustained funding for long-term, wide-scope climate research.

ASOC's 2020 recommendations to CCAMLR-39 are still largely relevant in 2021 (Appendix 1). In addition, ASOC recommends that CCAMLR incorporates climate change considerations into all CCAMLR Conservation Measures by 2030 through:

- agreeing to a revised CCRWP for CCAMLR during the 2021 Scientific Committee meeting, including agreeing to a timeline to ensure full implementation of the CCRWP by 2030;
- establishing a subsidiary group in 2021 to provide annual policy advice to CCAMLR on climate change, including with respect to fisheries management, spatial protections, and any other climate issues as they arise.
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Furthermore ASOC notes the climate action proposals made in CCAMLR-40/19; CCAMLR-40/23 Rev. 1; SC-CAMLR-40/08; SC-CAMLR-40/09; and CCAMLR-40/24 and recommends that CCAMLR-40 adopt them.

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Appendix 1 – ASOC 2020 recommendations to CCAMLR (SC-CAMLR-39/BG/18)

CCAMLR has a responsibility to ensure that its decision making processes and conservation measures anticipate and respond adequately to climate change driven changes to Southern Ocean ecosystems. ASOC therefore recommends that the Commission also adopts the CCRWP.

In particular, ASOC recommends prioritizing the following actions from the CCRWP to address the impacts of climate change:

- Enhance ecosystem resilience through suitable mechanisms, including establishing a representative system of MPAs.
- Explore plausible scenarios for changes in AMLR populations over the next 2-3 decades, including methods to evaluate fishing impacts and improve baseline data.
- Develop and adopt ecosystem based management for krill fisheries, including regularly updating biomass estimates, stock assessments and risk assessments.
- Undertake spatially explicit stock assessment to account for changes in spatial distribution of species due to sea ice changes.
- Reinvigorate the Climate Change e-Group, including updating its Terms of Reference and to provide an update of the CCRWP.
- Continue to work to identify reference areas for climate related research, including research specified in MPA Research and Monitoring Plans.