



COMMISSION

CCAMLR-XXVIII/BG/30

27 September 2009

Original: English

Agenda Item No. 7

SC Agenda Item No. 3(ii)

**CCAMLR'S 3-YEAR CHALLENGE:
DELIVERING A COMPREHENSIVE AND REPRESENTATIVE
PROTECTED AREAS NETWORK IN THE SOUTHERN OCEAN**

Submitted by ASOC

This paper is presented for consideration by CCAMLR and may contain unpublished data, analyses, and/or conclusions subject to change. Data in this paper shall not be cited or used for purposes other than the work of the CCAMLR Commission, Scientific Committee or their subsidiary bodies without the permission of the originators and/or owners of the data.

CCAMLR's 3-YEAR CHALLENGE: Delivering a Comprehensive and Representative Protected Areas Network in the Southern Ocean

1. Introduction

Work to progress the development and implementation of marine spatial protection and management within the CCAMLR area is moving ahead. ASOC has previously conveyed concerns that the rate of movement has been so far insufficient to meet internationally agreed commitments to establish marine spatial protection and management, including representative networks of marine protected areas (MPAs) and marine reserves by 2012.¹ ASOC still harbors these concerns.

Recent advancements towards the implementation of marine spatial protection and management in CCAMLR statistical areas 48.2, 88.1 and 88.2 are encouraging. So too are the outcomes of the joint workshop between the Committee for Environmental Protection (CEP) and the Scientific Committee of CCAMLR (SC-CAMLR) in April 2009, with a commitment to work cooperatively towards designating a comprehensive network of MPAs throughout the Southern Ocean. However, an expansion and intensification of these efforts involving more CCAMLR members is urgently required if the process is to continue to progress. Expansion and intensification is supported by key recommendations in the CCAMLR Performance Review Panel Report.² Given extra impetus it is still possible for CCAMLR to achieve the commitments it has made to establish comprehensive, adequate and representative marine spatial protection.

This paper presents recommendations on how the expansion and intensification of efforts to establish marine spatial protection and management can be achieved in order for CCAMLR to meet the World Summit on Sustainable Development (WSSD) 2012 commitments on the implementation of a representative system of MPAs and marine reserves.

2. Marine Spatial Protection and Management Work Plan

ASOC is pleased that work towards the development and implementation of marine spatial protection and management is progressing. Positive outcomes were achieved at the April 2009 joint CEP / SC – CAMLR workshop towards increasing cooperation and coordination between CCAMLR and the ATCM on the development and implementation of marine spatial protection and management in the Southern Ocean. CCAMLR must build on this momentum by observing the recommendations of the CCAMLR Performance Review to progress marine spatial planning and management as a matter of urgency. This requires recognition of the tools available under both CCAMLR and the Madrid Protocol and developing a clear prioritized program for MPA implementation.³

It is encouraging to see that not only is work progressing in the South Orkney/Islas Orcadas del Sur region, but the Ross Sea region is an area of active work, with progress being made by the initial development of a fine-scale bioregionalisation for the Ross Sea. This effort needs to be expanded and to involve more countries. Progress and immediate efforts in other areas of the Southern Ocean is warranted and encouraged by ASOC.

Further momentum for MPA designation in the Southern Ocean has been achieved with the South African government's gazetting of a proposal to designate a significant MPA around the Prince Edward Islands (PEIs MPA).⁴ Once the PEIs MPA designation is completed it will, in effect, form part of a network of MPAs that spans the northern extent of the Southern Ocean/CCAMLR Area in the Indian Ocean sector in the EEZs of South African, French (Kerguelen and Crozet Islands) and Australian (Heard and MacDonald Islands) sub-

¹ United Nations. 2002. *Report of the World Summit on Sustainable Development (Johannesburg, South Africa, 26 Aug-2 Sep 2002)*. United Nations, New York. Plan of Implementation, paragraph 32

² CCAMLR Performance Review Panel Report – Section 2.43, pages 13-14

³ *ibid*

⁴ <http://www.deat.gov.za/NewsMedia/MedStat/2009May7/medStatmnt07052009.html>

Antarctic islands. To meet the WSSD 2012 target to establish truly comprehensive and representative marine protection of the Southern Ocean, CCAMLR must now complement these nationally designated MPAs with marine protection in areas beyond national jurisdiction. This means using CCAMLR's tools, as well as those in the Environmental Protocol, to create an ecologically effective network capable of protecting the Southern Ocean's biodiversity.

Intrinsic to the development and implementation of marine spatial protection and management within the CCAMLR Area is the development and application of a work plan and timetable. This must be supported by appropriate commitments and investments of CCAMLR Members' time, their scientific, policy and management expertise, and importantly, the funding to make this work possible.

At the joint CEP / SC – CAMLR meeting there was agreement to develop such a strategy and to work towards the establishment of effective, representative and coherent spatial protection of marine biodiversity within the Antarctic Treaty Area within the next three years.⁵ The development of such a strategy and associated work plan should be a priority of CCAMLR Members at this meeting. The value of a well designed work plan has been demonstrated in related fora such as the CEP's five-year work plan and the ATCM's Subsidiary Group on Management Plans three-year work plan. These plans facilitate the coordination and achievement of large volumes of work. Importantly such a work plan and timeline, once developed by CCAMLR, should receive input from the CEP in recognition that close coordination and integration of activities will be required.

The development of a work plan however must not delay current initiatives in identifying areas for protection or preclude further proposals from being put forward as these can easily be incorporated into such a work plan. Annex 1 to this document provides a draft of such a work plan for consideration of Members.

2.1 CCAMLR MPA Special Fund

The CCAMLR Special Fund for Marine Protected Areas, established by a contribution from Belgium, provides a mechanism and focal point through which such a work plan and the resources required can be developed, coordinated and implemented. ASOC welcomes the additional contributions that have been made to the fund and encourages all CCAMLR Members to contribute.

The work plan should involve actions to help build capacity across CCAMLR members on marine spatial protection and management and its application and value in preserving the viability of ecosystems and habitats.

The carrying out of such a work plan to achieve an extensive network of marine spatial protection in the Southern Ocean by 2012 should not seem daunting. Work currently underway can act as a guide in progressing work in other regions. Further, the processes underway in many members' countries to establish MPAs and marine reserves within their own EEZs can also inform how to proceed. The following is a list of important considerations that should be given to the development of such a work plan.

3. Important Considerations for the Development of a Marine Spatial Protection and Management Work Plan

3.1 Collection of data

CCAMLR XXVII endorsed the prioritisation of 11 areas identified, on the basis of their physical heterogeneity, in which to initially focus efforts to establish marine spatial protection⁶. The assumption was that high physical heterogeneity represents high biotic diversity. These 11 areas were further endorsed by the Antarctic Treaty's CEP at the XXXII meeting of the ATCM (Antarctic Treaty Consultative Meeting).⁷

⁵ Final Report of the XXXII ATCM, para 97

⁶ SC-CAMLR-XXVII, para 3.55

⁷ Final Report of the XXXII ATCM, para 97, Final Report of CEP XII, para 171

A useful exercise that requires Members' urgent attention is to assemble all additional available relevant data with respect to the 11 identified areas. This has already taken place where work has been progressed in the South Orkney's/Islands Orcadas del Sur region and is progressing in the Ross Sea region but remains to be undertaken for other regions.

Most importantly it needs to be recognized and agreed by CCAMLR that existing data are sufficient to provide the framework under which systematic conservation planning processes can be applied across defined planning regions. This should eventually cover the whole of the Southern Ocean, beginning with the 11 identified priority areas.^{8, 9} Directed efforts to obtain additional data, while welcome, are not therefore necessary to progress the development and implementation of marine spatial protection.

Progress on the implementation of marine spatial protection should not be necessarily limited to the 11 priority areas.¹⁰ Efforts to gather existing data and use it to progress marine spatial protection in other areas of the Southern Ocean are also valuable and such efforts should be recognised and supported by CCAMLR. ASOC welcomes the collaboration by South African and French scientists on a fine scale bioregionalisation of the region between the Prince Edward and Crozet Islands. Such collaborations should be encouraged both within and outside the 11 prioritised areas.

3.2 Determination of the need for fine-scale analysis

CCAMLR has used broad-scale bioregionalisation as an initial basis to identify important areas in need of marine spatial protection.¹¹ Further, CCAMLR has recognised systematic conservation planning as one feasible method to progress the development and implementation of marine spatial planning.¹²

In many cases, especially for areas with low levels of biophysical heterogeneity, this broad-scale bioregionalisation, supplemented by other data sets, will be sufficient to develop a framework of marine spatial protection that is comprehensive, adequate and representative of the range of biodiversity in a chosen planning region.

Where relevant data exists at appropriate scales, it can be used to conduct a fine-scale bioregionalisation to validate the physical heterogeneity identified in the broad-scale bioregionalisation and further inform the spatial planning process to ensure that the full range of biodiversity is represented. Fine-scale bioregionalisation can be used where the selected area is sufficiently large to contain several key ecological features and biological processes, thus ensuring inclusion in their entirety within a designated area (see 4.2.1, below).

3.3 Selection Criteria for Marine Spatial Planning and Protection

It has been recognised at the joint CEP/SC-CAMLR workshop that a harmonized approach towards the implementation of marine spatial protection and management is supported in principle by both the ATCM and CCAMLR.¹³ Towards that end, the designation of Antarctic Specially Protected Areas (ASPAs), Antarctic Specially Managed Areas (ASMAs) and CCAMLR closed areas are mechanisms to implement marine spatial protection.¹⁴ The use of ASPAs and ASMAs is further supported by their recognition at the 2005 CCAMLR MPA workshop as mechanisms to implement marine spatial protection and management in the CCAMLR area. This being the case it would prove useful for CCAMLR to officially recognise the criteria, listed in articles 3 and 4 to the Madrid Protocol as valuable guidance inform the selection of areas that require spatial protection and management.

⁸ Final Report of CEP XII, para 160

⁹ CCAMLR XXVII Final Report, Para 7.2 (ii)

¹⁰ CCAMLR XXVII Final Report, Para 7.2 (vi)

¹¹ SC-CAMLR-XXVII, para 3.55

¹² SC-CAMLR-XXVII, para 3.55iii

¹³ Working Paper 55 to ATCM XXXII, Report of the Joint CEP/SC-CAMLR Workshop

¹⁴ Final Report of ATCM XXXII, Para 97, Report of the Joint CEP/SC-CAMLR Workshop, para 7.2

It would be additionally useful for CCAMLR to acknowledge that the Convention on Biodiversity's scientific criteria¹⁵ for identifying ecologically or biologically significant marine areas in need of protection are compatible with the Madrid Protocol Criteria. Together these can enhance and further inform the development and implementation of marine spatial protection and management.

4. Systematic Conservation Planning

Following on from the above, the application of systematic conservation planning to either a broad-scale or fine-scale bioregional framework by CCAMLR in developing marine spatial protection and management bears some consideration. Key internationally accepted principles of systematic conservation planning in line with the WSSD goals are those of comprehensiveness, adequateness and representativeness.

4.1 Comprehensiveness

In order for marine spatial protection and management to meet the principle of comprehensiveness it will need to capture all known elements of biodiversity across a range of scales within highly protected areas. This includes ecosystems, ecosystem processes, habitats, communities, populations and species.^{16,17}

4.2 Adequateness

The principle of adequacy relates to the ability of marine spatial protection and management to preserve biodiversity, ensure ecological viability of populations, species and habitats and maintain the integrity of ecological processes over the long term. Important components of adequacy include reserve size, configuration, connectivity, replication and level of protection.

4.2.1 Reserve Size – Size Matters

As marine spatial protection and management in the Southern Ocean is developed and implemented a key consideration is that the areas protected are of ecologically significant size. Therefore the areas set aside for high level protection must be large enough to ensure that the ecosystems, habitats, populations, species and ecological processes contained within remain viable, and this includes both sessile and highly mobile species, as well as acknowledging the uncertainty that exists in our knowledge of the life-history patterns of the majority of Southern Ocean organisms. The impacts of climate change must also be considered.

At the current time the extent of spatial protection of the Southern Ocean is inadequate with less than 0.25% protected within existing ASPAs, ASMAs and marine reserves located within national EEZs.¹⁸ This existing marine spatial protection is just a patchwork of small areas with none achieving what would be considered ecologically significant size. The World Parks Congress in Durban 2003 recommended that “networks should be extensive and include strictly protected areas that amount to at least 20-30% of each habitat.”¹⁹ The term ‘at least’ is important, as the World Parks Congress clearly recognised that some habitats will need a greater proportion protected than others. For isolated and regionally rare habitats it will be necessary to ensure that a greater proportion of those habitats are given protection as they will need to be self-sustaining.

Analysis of existing marine spatial protection has indicated that larger marine spatial protection accrue greater benefits of such protection.²⁰ Support for marine spatial protection of ecologically significant size in the Southern Ocean is further supported by the large scale of many oceanic processes and species’

¹⁵ Convention on Biological Diversity. COP 9 Decision IX/20 Marine and coastal biodiversity. <http://www.cbd.int/decision/cop/?id=11663>

¹⁶ Possingham, H P et al. 2005. The roles of spatial heterogeneity and ecological processes in conservation planning. Pages 389-406 in G. M. Lovett et al., editors. *Ecosystem Function in Heterogeneous Landscapes*. Springer, New York

¹⁷ Day, J, et al. 2002. The Representative Areas Program for Protecting Biodiversity in the Great Barrier Reef World Heritage Area. Proceedings of the Ninth International Coral Reef Symposium, Bali, Indonesia, 2000.

¹⁸ www.mpaglobal.org, The Antarctic Treaty Database,

¹⁹ <http://www.iucn.org/themes/wcpa/wpc2003/pdfs/outputs/recommendations/approved/english/html/r22.htm>

²⁰ Lubchenco, J. et al. (2003) Plugging a hole in the ocean: the emerging science of marine reserves. *Ecol. Appl.* 13, S3–S7

movements and evidence that larval dispersal distances increase in correlation to latitude and therefore the higher the latitude, the larger areas set aside for protection should be.²¹

4.2.2 Configuration – Ensuring Connectivity

How individual protected areas are configured and how they spatially relate to other areas within a network of marine spatial protection influence overall success in protecting and preserving biodiversity or special features. In general, larger reserves that capture the whole of a biodiversity feature make the feature's component habitat, species and populations less vulnerable to negative impacts and make management and enforcement arrangements easier. Further, individual areas of marine spatial protection must be designated in such a way as to preserve the ecological relationships and connectivity of its components. Areas selected for protection need to form a network that is greater than the sum of its parts and so connectivity is another important consideration.

4.2.3 Level of Reservation

A sufficient amount of a biodiversity feature needs to be highly protected within designated marine spatial protection that ensures species, habitat and or populations viability. There is no sense protecting a portion of a feature if damage to the unprotected area means the protected portion remains under threat.

4.2.4 Replication

Replication is needed to provide adequate protection against the uncertainty of negative impacts to a protected area from both human (e.g. climate change) and natural causes (e.g large iceberg). Therefore it is essential that more than one example of each type of feature, whether that be a habitat, species or population, is included in a network of marine spatial protection, and that these separate areas, if possible, are spatially separate. By achieving replication a biodiversity feature should not be lost if an unforeseen impact occurs.

4.2.5 Level of Protection

In order to preserve the integrity of biodiversity included within marine spatial protection it is necessary that the level of protection is effective. This is best achieved by the high level of protection offered by IUCN category I and II protected areas²², e.g. ASPAs. Further, the ability to assess the success of marine spatial protection will require highly protected areas to act as effective reference areas free of impacting activities.

4.3 Representativeness – Capturing Heterogeneity

It is generally accepted that any particular ecosystem or habitat differs quite markedly from other ecosystems or habitats. The principle of representativeness ensures that these differences or heterogeneity is captured by a systematic conservation process. For marine spatial protection and management to be truly representative all distinctions, both known and unknown (including predicted and extrapolated), in biophysical properties in a chosen planning region must be included. The use of physical proxies for biological activity within bioregionalisation allows for the capture of the unknown range of heterogeneity. As a general rule, large areas are more likely to include the full range of unknown biodiversity.²³ Known biophysical properties that should be account for include rare, endangered, and threaten species and their critical habitats, habitats of importance to migratory species, important areas for fishery resources such as spawning grounds, areas of high biological diversity or productivity and particular sensitive habitats.²⁴

²¹ Laurel, B J, and Bradbury, J R. (2006) 'Big concerns with high latitude marine protect areas (MPAs): trends in connectivity and MPA size'. *Canadian Journal of Fisheries and Aquatic Sciences*, 63 2603 - 2607

²² IUCN (1994). *Guidelines for Protected Areas Management Categories*. IUCN, Cambridge, UK and Gland, Switzerland. 261pp

²³ IUCN World Commission on Protected Areas (IUCN – WCPA) (2008). *Establishing Marine Protected Area Networks – Making it Happen*. Washington, D.C.: IUCN-WCPA, National Oceanic and Atmospheric Administration and The Nature Conservancy, pp 40-42

²⁴ Roberts et al. (2003). *Application of Ecological Criteria in Selecting Marine Reserves and Developing Reserve Networks*. *Ecological Applications* 13 (1)

5. Climate Change

The case for establishing extensive networks of marine spatial protection and management to preserve biodiversity is well documented.²⁵ CCAMLR should recognize that MPAs elsewhere have contributed importantly to increasing the sustainability of various fished stocks,²⁶ and that fishing can increase the sensitivity of stocks and ecosystems to climate change.^{27,28} Therefore, establishing large-scale networks of marine protected areas and marine reserves throughout the Southern Ocean can also significantly improve the resilience of Southern Ocean ecosystems, habitats and species to the impacts of climate change, including ocean acidification.²⁹ This is especially important given that even if direct mitigation of future increases in greenhouse gas pollution is effective, Southern Ocean ecosystems, habitats and species will still have to contend with significant climate change impacts. Besides increasing resilience in the system, the establishment of marine spatial protection and management can provide valuable reference areas to study and quantify the impacts of climate change free from other forms of human activity.³⁰

6. Conclusions

It is time for CCAMLR to recognise the urgency required in order to meet the 2012 WSSD deadline to implement marine spatial protection and management that includes highly protected marine reserves. At CCAMLR XXVIII, members have the opportunity to lay the foundation and put things on track to achieve this agreed goal. This will be best achieved by the development of a work plan and associated timeline that clearly elucidates step-by-step what benchmarks will need to be achieved over the course of the next three years to meet the 2012 goals. In addition, the ongoing commitment of time and resources of CCAMLR Members is required to ensure such a work plan can meet its goals. The need to protect Southern Ocean biodiversity from the threat of climate change and provide scientific reference areas to study and quantify the impacts of climate change free from other forms of human activity adds to this urgency.

ASOC recommends that:

- CCAMLR XXVIII establish a clearly defined process and accompanying work plan and timeline, including consultation with the CEP, for establishing comprehensive, adequate and fully-representative networks of MPAs and marine reserves to be implemented by 2012 in all 11 areas identified prioritised for implementation of marine spatial planning and management.
- CCAMLR Members agree to commit substantial resources to intersessional work to progress marine spatial protection and management.
- CCAMLR Members make financial commitments to the CCAMLR MPA Fund.
- CCAMLR considers how to build capacity in all members to progress marine spatial protection.

²⁵ CCAMLR-XXIII, para 4.13, CCAMLR Convention, Article II

²⁶ Roberts, C.M. et al. (2005) The role of marine reserves in achieving sustainable fisheries. *Philos. Trans. R. Soc. B Biol. Sci.* 360, 123–132

²⁷ Hsieh, C-h., C.S. Reiss, J.R. Hunter, J.R. Beddington, R.M. May, G. Sugihara. 2006. Fishing elevates variability in the abundance of exploited species. *Nature* 443: 859-862.

²⁸ Hsieh, C-h., C.S. Reiss, R.P. Hewitt, G. Sugihara. 2008. Spatial analysis shows that fishing enhances the climatic sensitivity of marine fishes. *Canadian Journal of Fisheries and Aquatic Science* 65: 947–961.

²⁹ Hughes, T.P. et al. (2005) New paradigms for supporting the resilience of marine ecosystems. *Trends Ecol. Evol.* 20, 380–386

³⁰ ASOC's paper on the Ross Sea for CCAMLR XXVIII - "The Case for Special Protection of the Ross Sea" - includes a section on it serving as a climate change reference zone.

ANNEX 1

PROPOSED WORK PLAN FOR CCAMLR TO PROGRESS MARINE SPATIAL PROTECTION AND MANAGEMENT

Year 1 (2009-2010) – Tasks Completed	Year 2 (2010-2011) – Tasks Completed	Year 3 (2011-2012) – Tasks Completed
Establish Correspondence Group (CG) to administer MSP&M work plan & timeline	Presentation of April 2010 Workshop outcomes to WG-EMM	Assessment by MSP&M ICG with reports to WG-EMM, SC-CAMLR & where appropriate CEP on progress to date to meet 2012 – Revision to work plan if necessary
Development & Adoption of Marine Spatial Protection & Management (MSP&M) work plan and timeline to use CCAMLR MPA funds	Assessment by MSP&M ICG with reports to WG-EMM, SC-CAMLR & CEP on progress to date to meet 2012 – Revision to work plan if necessary	Members to progress work in remaining 9 priority areas (and other areas identified in the data collation process) including data collection, fine scale bioregionalisation (if necessary), site selection of areas for MSP&M implementation
Inform Committee for Environmental Protection (CEP) of details of work plan and timeline	Members to progress work in remaining 9 priority areas (and other areas identified in the data collation process) including data collection, fine scale bioregionalisation (if necessary), site selection of areas for MSP&M implementation	Presentation to WG-EMM & SC-CAMLR on progress on MSP&M work to date in priority areas. Also advise CEP
Intersessional collation of data within and outside 11 priority areas	Presentation to WG-EMM & SC-CAMLR on progress on MSP&M work to date in priority areas. Also advise CEP	Consideration and adoption including feedback of proposals by WG-EMM, SC-CAMLR, and CCAMLR of implementation proposals on MSP&M
April 2010 Workshop to progress MSP&M in CCAMLR – Assess what data exists, need for fine scale analysis	Consideration and adoption including feedback of proposals by WG-EMM, SC-CAMLR, and CCAMLR of implementation proposals on MSP&M	CG to identify gaps in progress on MSP&M in 11 priority areas and direct funding as appropriate to fill gaps
Members to progress work in remaining 9 priority areas including data collection, fine scale bioregionalisation (if necessary), site selection of areas for MSP&M implementation	CG to identify gaps in progress on MSP&M in 11 priority areas and direct funding as appropriate to fill gaps	Proposals for MSP&M in priority areas where proposals have not previously been put forward and adopted / designated are put forward for adoption and designation
CG to identify gaps in progress on MSP&M in 11 priority areas and direct funding as appropriate to fill gaps	Adopt fine scale bioregionalisation of the Ross Sea region	
Designation / Adoption of developed MSP&M proposals	Designation / Adoption of developed MSP&M proposals	