COMMISSION FOR THE CONSERVATION
OF ANTARCTIC MARINE LIVING RESOURCES

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Ross Sea Region Marine Protected Area: Explanation of objectives supporting component areas

Delegations of New Zealand and the USA

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Ross Sea Region Marine Protected Area:
Explanation of objectives supporting component areas

In response to questions from some members, the following paper provides an explanation of specific objectives supporting the various component areas of the proposed Ross Sea Region Marine Protected Area (CCAMLR-XXXII/27).

Ross Sea Region Marine Protected Area:
Explanation of objectives supporting component areas

The Ross Sea Region Marine Protected Area (MPA) comprises two zones: a General Protection Zone and a Special Research Zone. The boundaries of the MPA were determined by the objectives for the MPA and the spatial extent of the mapped priority features or ecosystem processes associated with each objective. Collectively, the various components of the MPA contribute to the achievement of 10 objectives, each with one or more associated priority features. A paper summarising the science supporting the MPA proposal was submitted to the July 2013 intersessional meeting of the Scientific Committee (SC) in Bremerhaven[1].

The MPA objectives fit into three main categories: representativeness, mitigating ecosystem threats, and scientific reference areas. The category of MPA objective has implications for the type and level of protection that is required within MPAs, and for the design of research and monitoring to evaluate MPA effectiveness. A full analysis of potential threats from fishing to the objectives of a RSRMPA was also submitted to the Scientific Committee meeting in July 2013[2]. Both "representativeness "and "mitigating ecosystem threats" can also be termed "protection objectives". A table showing proportion of mapped objectives contained within the boundaries of the MPA is attached.

General Protection Zone

The General Protection Zone is designed to provide protection to the full range of bioregions represented in the Ross Sea region and to support scientific research objectives including those relating to assessing the ecosystem effects of fishing distinct from climate change.

This addresses specific objectives (iv) a and b, (iii) and (ii).

Continental Shelf

The Ross Sea continental shelf includes important foraging areas for top predator populations, habitats important to native mammals, birds, fishes and invertebrates, known rare or vulnerable benthic habitats, important life cycle areas for Antarctic toothfish, areas important for ecosystem productivity and functioning of the Ross Sea shelf pelagic ecosystem, krill and silverfish distributions, and other coastal or localised areas of particular ecological importance. The area will also support continued research and monitoring of subadult toothfish and other long-term data series.

This area includes specific objectives (vii) a – d, (i), (x) c and e, (ix) a and b, (v) a and d, (vi) a – c, (viii) a – e, and (iii).

Eastern Ross Sea

The eastern Ross Sea includes habitats and features, such as persistent pack ice, important to native mammals, birds, fishes and invertebrates, including essential moulting habitat for large numbers of Emperor penguins and crabeater seals which feed on Antarctic krill during the late summer moulting period. This area also includes rare or vulnerable benthic habitats associated with the slope, adult toothfish feeding habitat and foraging areas for Weddell seal and killer whales.

[1] http://www.ccamlr.org/en/sc-camlr-im-i/08
[2] http://www.ccamlr.org/en/sc-camlr-im-i/09

This area includes specific objectives (i), (v) e, (x) d, (ix) c, and (vii) c and d.

Balleny Islands and Proximity

The area around the Balleny Islands encompasses multiple protection objectives, including protection of rare or vulnerable benthic habitats and incorporates objectives similar to those mapped separately on the Ross Sea shelf, for example the presumed foraging area of colony-based predators and island generated temporary polynyas which affect biological productivity. The area also includes a range of seasonal ice characteristics, supports key prey species and includes habitats that are important to native mammals, birds, fishes and invertebrates.

This area includes specific objectives (x) a, (vii) a – d, (viii) b, (v) c, (vi) a and c, and (i).

Northern Region & Scott Seamount

This area provides protection to multiple habitats, including ridges and benthic habitats associated with seamounts, not represented elsewhere in the MPA. It also protects large-scale ecosystem processes associated with the polar front. In addition, Scott Seamount was specifically identified as supporting rare or vulnerable benthic habitats.

This area includes specific objectives (iv) a and b, (v) b, and (x) f.

Special Research Zone

The Special Research Zone presents an opportunity to advance research to increase scientific understanding about the ecosystem effects of fishing and climate change. Limiting fishing in the SRZ enables comparisons between lightly fished vs. more heavily fished locations on Mawson and Iselin Bank. Of key importance in the SRZ is maintaining the continuity and integrity of the toothfish tagging program. Pelagic protection in this zone also serves to protect important areas for key prey species and habitats important to native mammals, birds, fishes and invertebrates.

This area includes specific objectives (iii), (ii), (vi) a – c, and (i).

Table: Protection levels achieved for mapped objectives

Priority Area	Description of priority feature or area[1]	CCAMLR XXXII/27
Objective iv[1]: representativeness of benthic and pelagic bioregions		
a. 17 benthic bioregions	[benthic bioregionalisation in Figure 1 of WG-EMM-10/30]	Minimum 17%
b. 18 pelagic bioregions	[pelagic bioregionalisation in Figure 2 of WG-EMM-10/30]	Minimum 1%
Objective v: large-scale ecosystem processes/ areas		
a.	Ross Sea shelf front intersection with seasonal ice	67%
b.	Polar Front	16%
c.	Balleny Islands and proximity	100%
d.	Ross Sea polynya Marginal Ice Zone	88%
e.	Eastern Ross Sea multi-year ice	99%
Objective vi: trophically dominant pelagic prey species		
a.	Antarctic krill core distribution	55%
b.	Crystal krill core distribution	99%
c.	Antarctic silverfish core distribution	98%
Objective vii: spatially constrained top predator foraging distributions		
a.	Adelie penguin summer nesting season core foraging distribution	92%
b.	Emperor penguin summer nesting season core foraging distribution	94%
c.	* Weddell seal summer pupping season core foraging distribution	96%
d.	* Type C killer whale summer preferred foraging distribution	83%
Objective viii: coastal/localized areas of particular ecosystem importance		
a.	Southern Ross Sea shelf persistent winter polynya	100%
b.	Coastal polynyas	94%
c.	Terra Nova Bay	100%
d.	Victoria coast – coastal buffer and platelet ice formation zone	100%
e.	Pennell Bank polynya	74%
Objective ix: D. mawsoni life cycle areas		
a.	* Subadult toothfish settlement areas on the Ross Sea shelf	100%
b.	* Dispersal trenches for maturing toothfish	81%
c.	* Adult feeding areas on the Ross Sea shelf slope	32%
Objective x: rare or vulnerable benthic habitats		
a.	Balleny Islands and adjacent seamounts	100%
b.	Admiralty Seamount	100%
c.	Cape Adare proximity continental slope	100%
d.	Southeast Ross Sea continental slope	100%
e.	McMurdo Sound	100%
f.	Scott Seamount	100%
Cost metric	**Description of fishing effort displacement metric**	**% displacement**
Catch	Total tons of toothfish catch, 1998-2013	23%

Objectives marked by * are benthic or potentially affected by fishing for toothfish, the SRZ therefore does not contribute toward achievement of their protection targets

[1] See WS-MPA-11/25 for mapped boundaries of priority features and areas

[1] Objectives 1-3 are not listed as they are not suitable for spatial mapping. A full list of objectives can be found in ANNEX 91-XX/B of SC-CAMLR-XXXII/27