Conveners Report of the Symposium on Harmonisation of Conservation and Krill Fishery Management Initiatives in the Antarctic Peninsula Region
(Incheon, Republic of Korea, 16 to 20 July 2024)

George Watters and Jung-re Riley Kim

Welcome

1.1 The Harmonisation Symposium (HS-2024) was held at the Songdo ConvensiA Centre in Incheon, Republic of Korea from 16 to 20 July 2024. The Symposium was funded by the Association of Responsible Krill harvesters (ARK) and the Antarctic and Southern Ocean Coalition (ASOC) and co-convened by Dr G. Watters (USA) and Ms J. Kim (Republic of Korea).

1.2 A total of 56 participants, including ten invited experts from observer organisations, and Secretariat staff attended the Symposium.

Introduction and background

2.1 The objective of the Symposium was to "provide recommendations to CCAMLR for steps to harmonise the implementation of the revised krill fishery management approach (KFMA) and the establishment of a Domain 1 MPA (D1MPA) in the Antarctic Peninsula Region, and recommendations for practical and cost-effective collection and analysis of data" (SC-CAMLR-42, Annex 14).

2.2 At the start of the Symposium, the participants agreed that, to facilitate free-flowing, informal discussion and maximize the available time for progress, the report of the meeting should not be a typical adopted report. This report thus describes the outcomes of the Symposium from the perspective of the Co-conveners, but includes a core set of recommendations adopted by consensus of the participants as Attachment I.

2.3 The agenda, list of participants and list of papers are included as Attachments II, III and IV.

2.4 Papers submitted to the Symposium were taken as read (if the papers had a policy focus) or were previously considered by WG-EMM-2024 (if the papers had a science or technical focus).

2.5 The Convener of WG-EMM (Dr J. Hinke, USA) summarised the outcomes from a focus topic discussion on harmonisation held immediately prior to the Symposium (WG-EMM-2024, Agenda Item 5).

Near-term harmonisation

3.1 The Symposium discussed increased catch limits for krill in Subarea 48.1, potential adjustments to management units for the KFMA, protection zones within a D1MPA, and data-collection requirements. These discussions were based on Figures 2–13 and Tables 3–8 in WG-EMM-2024 and focused mostly on harmonisation within Subareas 48.1 and 88.3. Implications for Subarea 48.2 were also considered.

3.2 In exploring options to harmonize the KFMA and a D1MPA by simultaneously increasing catch limits for krill and establishing zones in which directed krill fishing would either be seasonally prohibited or prohibited all year long, the Symposium considered three general principles.

(i) Harmonised solutions should ensure the aggregate effectiveness and achievement of D1MPA objectives.

(ii) The boundaries of General Protection Zones (GPZs, in which directed fishing would be prohibited all year long) and Seasonal Protection Zones (SPZs, in which directed fishing would be seasonally prohibited) and the effective dates of SPZs should be based on the relevant D1MPA objectives.

(iii) The periods when SPZs are open to directed fishing should be sufficiently long to allow the catch limits within the management units to be taken.

3.3 Based on these principles, the Symposium agreed a set of recommendations (Attachment I) for further consideration by the Scientific Committee and Commission. These recommendations describe a potential harmonised approach in Subareas 48.1 and 88.3, including application of krill catch limits in Subarea 48.1 from the "2max" catch-limit scenario developed by WG-EMM (WG-EMM-2024, Table 5) and consideration of other implementation issues.

3.4 In reaching the agreed recommendations, the Symposium noted reservations, expressed by several participants, on three particular issues.

(i) The size of and permitted activities within the "SWAP" area in Subarea 88.3, in particular how the establishment of a GPZ or other zone might affect the continuation of toothfish research under CM 24-01 and possible future development of an exploratory fishery in this area, even while krill fishing might be prohibited and the D1MPA objectives might be achieved.

(ii) The seasonal catch limits for krill in the Gerlache Strait and Bransfield Strait management units, in particular whether the catch limits specified for these management units in the "2max" scenario are appropriate given high levels of uncertainty regarding krill biomass and predator requirements in the Gerlache Strait and previously higher catches in the Bransfield Strait.

(iii) The size and seasonality of the SPZs in the Gerlache Strait, Bransfield Strait and around the South Shetland Islands, in particular whether the fishery could catch the available catch limit while also maximising protections afforded to central place foragers and other predators in these areas.

3.5 The Symposium also discussed an alternative approach. This alternative would be to define GPZs within Subareas 48.1 and 48.2 as spatial buffers extending offshore from all coastal areas (with potentially different spatial buffers during summer and winter and with all of Subarea 88.3 being closed to directed fishing for krill) and applying a single catch limit for krill within Subarea 48.1 (and eventually Subarea 48.2) based on one of the catch-limit scenarios developed by WG-EMM. The Symposium noted that this would simplify implementation of a harmonized approach, but was unable to determine whether this alternative might achieve the D1MPA objectives. There was also concern that this alternative would lead to concentrated fishing which might negatively impact protection of krill-dependent predators.

Data requirements

3.6 When considering the next steps for harmonisation, the Symposium noted that the full suite of data required to regularly update components of the KFMA and evaluate a D1MPA would take time to deliver. However, the recommendations in Attachment I could be implemented in the short term, while essential data are collected and data-collection efforts are improved.

3.7 The Symposium noted that a suitable period for an initial phase of harmonisation would be 3 years. It would be important that policies implemented during this initial phase generate the required data and provide clear guidance so that industry may contribute to data collection and comply with requirements. At the end of such an initial phase, and following review, the harmonised approach could be modified, including potential modifications of catch limits, boundaries, and management provisions of both the KFMA and a D1MPA.

3.8 The Symposium reviewed data-collection requirements to support the KFMA and evaluate a D1MPA (WG-EMM-2024, Table 7), noting that these requirements are complex but potentially synergistic. To benefit from such synergy, the Symposium noted that a formal Data Collection Plan for the KFMA and a Research and Monitoring Plan for a D1MPA could be integrated into a single document. The development of such an integrated plan could occur during the initial phase of harmonisation.

3.9 Recommendations on data collection are included in Attachment I.

Conservation Measures to implement harmonisation

4.1 The Symposium recognised that a number of existing Conservation Measures are relevant to the KFMA and a D1MPA, including those addressing krill catch limits, MPAs, data reporting, and fishery closures, notification and compliance.

4.2 The Symposium noted differences of opinion regarding how the catch limit for Subarea 48.1 should be integrated into the total catch limit for Area 48. Some participants thought Conservation Measure 51-01 should be revised so that the trigger level specified in Paragraph 3 of the measure does not apply to Subarea 48.1. Other participants thought the trigger level should be applied to Subarea 48.1 until a harmonized approach is also developed for Subareas 48.2, 48.3, and 48.4.

4.3 Recommendations on Conservation Measures are included in Attachment I.

Longer-term harmonisation

5.1 The Symposium agreed that there was insufficient information and time to allow detailed consideration of harmonisation within Subarea 48.2 at the meeting. Nevertheless, the following points were noted.

(i) Implementation of the harmonised MPA scenario provided in Attachment I could displace fishing effort unpredictably into or out of Subarea 48.2.

(ii) The catch of krill currently taken from Subarea 48.2 is the largest from any of the subareas listed in Conservation Measure 51-07 (see SC-CAMLR-42/BG/01).

(iii) Harmonized approaches for Subarea 48.2 have been considered at other meetings (e.g., WG-EMM-2024/27 introduced a potential GPZ illustrated in Attachment I, Figure 1 and in WG-EMM-2024), including the possibility of limiting krill catches in the area to the northwest of Coronation Island.

5.2 The Symposium recommended that a harmonized approach be developed for Subarea 48.2 in parallel with priority work on Subarea 48.1 so as to manage the risks of concentrated krill fishing.

Report

6.1 The recommendations agreed at the Symposium are in Attachment I.

Close of the Symposium

7.1 The Conveners noted that the Symposium made important and positive progress in identifying a compromise solution to the difficult problem of harmonization and thanked all participants, the funders ARK and ASOC, the Government of Korea and local organising team, and the Secretariat.

Attachment I

Recommendations

1. The Symposium noted that the harmonized approach recommended here was developed in a short period of time and in a spirit of collaboration and compromise. All participants noted an interest in more carefully evaluating and considering the recommendations prior to CCAMLR-43. The following recommendations do not necessarily represent a consensus of the participants but are proposed as specific issues that participants agreed merit further consideration by the Scientific Committee and Commission.

2. The Symposium recommended that the Scientific Committee and Commission consider the harmonized MPA scenario illustrated in Figure 1. The seasonal application of Figure 1 is further illustrated in Figure 2.

3. The Symposium identified two elements within the harmonized MPA scenario that require further discussion.

(i) Management provisions for the zone occurring in Subarea 88.3, labelled SWAP2, and identified as the tan polygon in Figure 1 require further clarification. The Symposium recommended that these provisions allow for the possible development of an exploratory toothfish fishery with research blocks overlaying the zone should Subarea 88.3 be opened to fishing, while prohibiting all other fishing therein.

(ii) The SPZ on the Drake Passage side of King George, Nelson, Robert and Greenwich Islands requires further consideration of the trade-off between the area in which krill-dependent predators would be annually protected from December through February and in which krill fishing would be permitted. This decision will establish the offshore boundary of the SPZ (indicated as TBD in Figure 1) or determine whether the SPZ is established.

4. The Symposium noted that the harmonized MPA scenario illustrated in Figure 1 does not include Subarea 48.2 and recommended that a harmonized approach be developed for Subarea 48.2.

5. Using the management units advised by WG-EMM-2024 (paragraph 5.18), the Symposium recommended that the Commission and SC-CAMLR consider accompanying the harmonized MPA scenario with the catch limits in Table 1 (and included as annotations to Figure 2).

6. The Symposium recommended that, if the harmonized approach presented here is adopted during CCAMLR-43 and implemented in the 2024/25 fishing season, the catch limits in Table 1 should apply for a trial period of three fishing seasons. Additional review and data should be used to revise the catch limits at the end of this trial period.

7. Following the advice of WG-EMM (WG-EMM-2024, paragraphs 5.59-5.71), the Symposium recommended that SC-CAMLR and its working groups develop an integrated data collection plan that can simultaneously support implementation of the krill-fishery management approach and evaluation of the MPA. The Symposium specifically recommended that SC-

CAMLR develop an ecosystem health check to monitor the effects of CCAMLR harmonized management decisions in Subarea 48.1. The monitoring data currently available in Subarea 48.1, including external sources of data, should urgently be reviewed and utilized in the spatial overlap analysis and health check. Additional data are needed for the krill stock hypothesis to support krill fisheries management and MPA objectives. The Symposium recommended that SC-CAMLR urgently determine spatial gaps in data availability and prioritise what data are required from these areas in order to address the above process. Finally, SC-CAMLR should identify or develop internal or external funding sources to support analysis.

8. The Symposium recommended that if the harmonization approach is implemented, the Commission require that the data collection and monitoring plan for Subarea 48.1 specify outcomes and metrics of success and be reviewed by the Scientific Committee three years after the start of the trial period, with the objective to determine if management of the fishery is still precautionary and if the MPA is performing as expected. The Symposium further noted that this would potentially coincide with the planned review of the Ross Sea region MPA in 2027.

9. The Symposium recommended that existing conservation measures be revised and new conservation measures be adopted to

(i) establish the harmonized MPA scenario illustrated in Figure 1 (this would require a new conservation measure),

(ii) authorize transhipment within the harmonized MPA scenario (this could be done within the MPA measure or by revising CM 10-09),

(iii) define management units for Subarea 48.1 to distribute krill catches spatially and specify seasonal catch limits therein (this could be done by revising CM 51-07),

(iv) facilitate revisions to catch limits and the boundaries of the MPA and management units in response to new information and change (this might require changes to multiple measures),

(v) revise catch and effort reporting and fishery closure mechanisms, including higher reporting frequencies when catches are relatively close to the management unit catch limit or other mechanisms when the catch limit within a management unit is small (this could be done by revising CM 23-07),

(vi) provide port inspections of all vessels carrying krill products and establish appropriate product codes for these products (this could be done by revising CM 10-03),

(vii) notify when krill fishing vessels plan to undertake acoustic surveys (this could be done within CM 21-03), and

(viii) allow krill fishing vessels to remain in a management unit after it is closed (this could be done within CM 31-02).

10. The Symposium noted that potential revisions to other conservation measures (e.g., CMs 10-04, 51-01 and 51-06) and the SISO observer manual require further discussion.

11. The Symposium noted that implementing the harmonized approach will increase demands on the Secretariat, including scientific demands to process data and administrative demands to track catches against catch limits. The Symposium recommended that the Secretariat advise the Commission on the practical implementation issues that might be needed to implement the harmonized approach, including budget and personnel requirements.

Table 1. Catch limits to accompany the harmonized MPA scenario illustrated in Figure 1 (from the catch-limit scenario identified as "2max" in WG-EMM-2024 Table 5). The total Catch Limit for Subarea 48.1 would be 395 432 tonnes.

	Catch limit (t)	
Management unit	October through March	April through September
JOIN	533	11 852
EI	44 241	73 311
BS	4 077	73 110
SSIW	36 693	48 858
GS	7 952	70 698
PB	8 437	
DP	15 669	

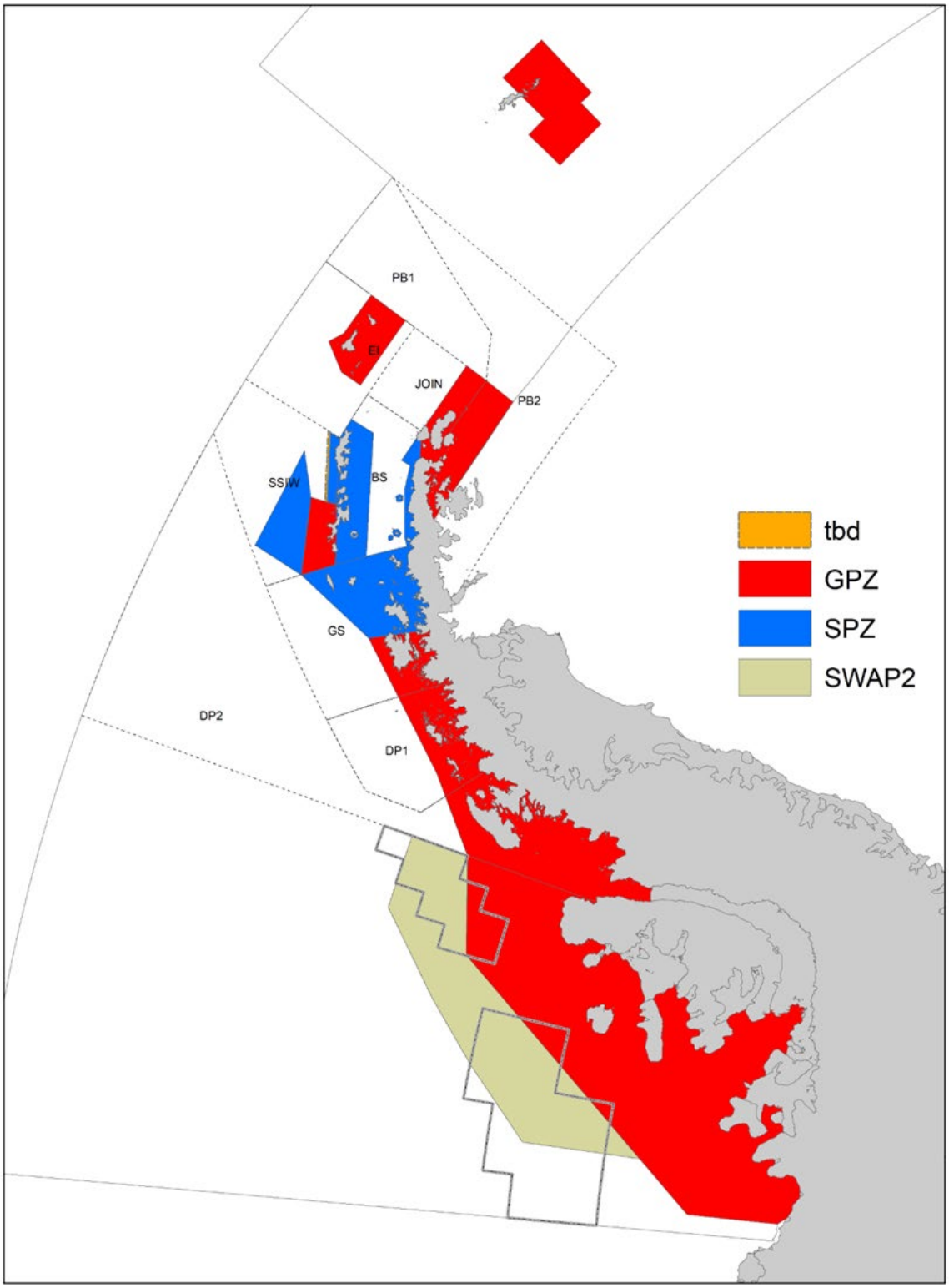

Figure 1. A harmonized MPA scenario as developed by the Harmonisation Symposium. Red polygons indicate General Protection Zones (GPZ). Blue polygons indicate Seasonal Protection Zones (SPZ; see Figure 2 for effective months) and the beige zone indicates a Southwestern Antarctic Peninsula GPZ (SWAP2) which has fewer restrictions than the SWAP GPZ. Black polygons indicate management units in Subarea 48.1 and toothfish research blocks Subarea 88.3.

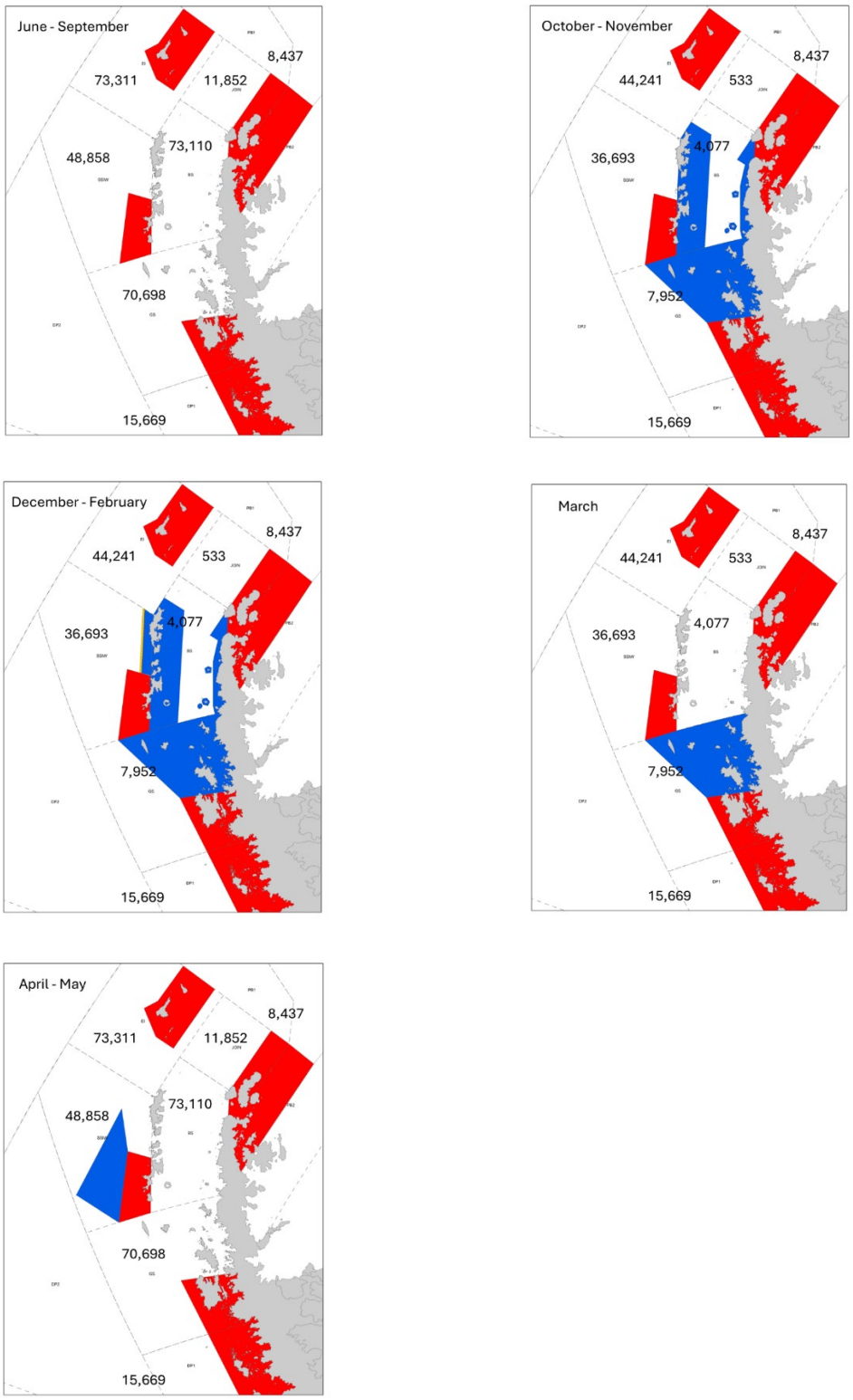

Figure 2. Status of SPZs in Subarea 48.1 during different months. Numbers indicate the proposed seasonal catch limits (summer or winter) within each management unit following catch-limit scenario "2Max" from WG-EMM-2024 Table 5. The period of closure for each SRZ is as follows: Gerlache Strait - 1 October through 31 March; Bransfield Strait, southern side of the South Shetland Islands - 1 October through 29 February; Bransfield Strait, Antarctic peninsula coast - 1 October through 29 February; South Shetland Island West, north side of King George, Nelson, Robert, and Greenwich Islands - 1 December through 29 February; and South Shetland Island West, north of the GPZ: 1 April through 31 May.

Attachment II

List of Registered Participants

Harmonisation Symposium 2024
(Incheon, Korea, 16 to 20 July 2024)

Co-convener		Ms Jung-re Riley Kim Ministry of Oceans and Fisheries of Korea
Co-convener		Dr George Watters National Marine Fisheries Service, Southwest Fisheries Science Center
Invited Expert		Dr Javier Arata Association of Responsible Krill harvesting companies (ARK)
		Ms Nicole Bransome The Pew Charitable Trusts
		Ms Claire Christian Antarctic and Southern Ocean Coalition
		Mr Martin Clark Consultant / The Advocacy Hub
		Dr Yeadong Kim Korea Polar Research Institute
		Mr Sang-Yong Lee Jeong-Il Corporation
		Mr Sebin Lee SCAR
		Mr Pål Einar Skogrand Aker BioMarine
		Dr Heidi Weiskel IUCN
		Dr Rodolfo Werner The Pew Charitable Trusts & Antarctic and Southern Ocean Coalition
Argentina	Head of Delegation:	Mr Fausto Lopez Crozet Ministry of Foreign Affairs and Worship

	Adviser:	Dr María Mercedes Santos Instituto Antártico Argentino
Australia	Head of Delegation:	Dr Philippe Ziegler Australian Antarctic Division, Department of Climate Change, Energy, the Environment and Water
	Advisers:	Ms Sally Carney Australian Antarctic Division, Department of Climate Change, Energy, the Environment and Water
		Dr Nat Kelly Australian Antarctic Division, Department of Climate Change, Energy, the Environment and Water
Chile	Head of Delegation:	Mr Marcos Correa Ministry of Foreign Affairs of Chile
	Alternate Representatives:	Mr Juan Enrique Loyer Greene Ministry of Foreign Affairs of Chile
		Mr Francisco Santa Cruz Instituto Antartico Chileno (INACH)
	Advisers:	Dr César Cárdenas Instituto Antártico Chileno (INACH)
		Dr Lucas Krüger Instituto Antártico Chileno (INACH)
China	Adviser:	Dr Yi-Ping Ying Yellow Sea Fisheries Research Institute
Germany	Head of Delegation:	Professor Bettina Meyer Alfred Wegener Institute for Polar and Marine Research
Japan	Adviser:	Dr Taro Ichii Japan Overseas Fishing Association
Korea, Republic of	Advisers:	Mr Hyun Joong Choi TNS Industries Inc.
		Mr Sang-jin Choi Korea Overseas Fisheries Association

		Mr Jaehoon Choi Dongwon Industries Co., Ltd
		Dr Sangdeok Chung National Institute of Fisheries Science (NIFS)
		Mr Seonjung Jeon Insung Corp.
		Mr Ho-Jeong JIN Korea Overseas Fisheries Association
		Mr Yoonseok Jung Ministry of Oceans and Fisheries
		Dr Eunjung Kim National Institute of Fisheries Science
		Dr Jeong-Hoon Kim Korea Polar Research Institute (KOPRI)
		Dr Eunhee Kim Citizens' Institute for Environmental Studies
		Dr Hyoung Sul La Korea Ocean Polar Research Institute (KOPRI)
		Ms Seung Eun "Summer" Lee Korea Overseas Fisheries Cooperation Center
		Ms Jooyoun Lee Ministry of Oceans and Fisheries of Korea
		Mr Kanghwi Park Jeong Il Corporation
		Mr Seok Seo Dongwon Industries
		Mr Tae-hoon Won Ministry of Oceans and Fisheries
Norway	Alternate Representative:	Mr Petter Meier Ministry of Trade, Industry and Fisheries

	Advisers:	Dr Ann-Lisbeth Agnalt Institute of Marine Research
		Mr Elling Deehr Johannessen Norwegian Polar Institute
		Dr Andrew Lowther Norwegian Polar Institute
		Mr Steven Rooney Rimfrost AS
Ukraine	Adviser:	Mr Viktor Podhornyi Institute of Fisheries and Marine Ecology (IFME)
United Kingdom	Head of Delegation:	Ms Jane Rumble Foreign, Commonwealth and Development Office
	Alternate Representative:	Ms Kylie Bamford Foreign, Commonwealth and Development Office
	Advisers:	Dr Martin Collins British Antarctic Survey
		Dr Simeon Hill British Antarctic Survey
United States of America	Head of Delegation:	Ms Ona Hahs Office of Ocean and Polar Affairs, Bureau of Oceans and International Environmental and Scientific Affairs
	Advisers:	Dr Lauren Fields National Oceanic and Atmospheric Administration (NOAA)
		Dr Jefferson Hinke National Marine Fisheries Service, Southwest Fisheries Science Center
CCAMLR Secretariat		Dr David Agnew Executive Secretary
		Dr Steve Parker Science Manager

Attachment III

Agenda

Harmonisation Symposium 2024
(Incheon, Korea, 16 to 20 July 2024)

1. Welcome

2. Introduction and Background

3. Near-Term Harmonisation

4. Conservation Measures do Implement Harmonisation

5. Longer-Term Harmonisation

6. Report

7. Close of Symposium

Attachment IV

List of Documents

Harmonisation Symposium 2024
(Incheon, Korea, 16 to 20 July 2024)

HS-2024/01	Background, specific objectives and materials to support the Harmonisation Symposium Harmonisation Symposium Steering Committee
HS-2024/02	Exploring a scenario for harmonising D1MPA and krill fishery in subarea 48.1 and adjacent subareas Delegations of Argentina and Chile
HS-2024/03	A sustainable strategy for the long-term monitoring of krill populations Arata, J.A.
Other documents	
WG-EMM-2024/22	How to move forward with CM 51-07 Krafft, B., X. Zhao, Y. Ying, T. Knutsen, X. Wang, E.D. Johannessen, A. Lowther and J.A. Arata
WG-EMM-2024/28	Implementing the New Krill Fishery Management Approach: A Workflow for Updating Subarea Catch Limits Krafft, B., X. Zhao, Y. Ying, X. Wang, T. Knutsen, E.D. Johannessen, A. Lowther, S. Chung and J.A. Arata
WG-EMM-2024/42	Comparing the proposed Domain 1 MPA and revised krill fishery management approach: conservation, displacement, and ecosystem monitoring Johannessen, E.D., U. Lindstrøm, T. Knutsen, B.A. Krafft and A. Lowther