SC-CAMLR-39

SCIENTIFIC COMMITTEE FOR THE CONSERVATION OF ANTARCTIC MARINE LIVING RESOURCES

REPORT OF THE THIRTY-NINTH MEETING OF THE SCIENTIFIC COMMITTEE

VIRTUAL MEETING
26 OCTOBER 2020

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Chair of the Scientific Committee
November 2020

Abstract

This document presents the adopted report of the Thirty-ninth Meeting of the Scientific Committee for the Conservation of Antarctic Marine Living Resources held online on 26 October 2020.

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Content

Report of the Thirty-ninth
Meeting of the Scientific Committee
(Virtual meeting, 26 October 2020)

Opening of the meeting

1.1 The Scientific Committee for the Conservation of Antarctic Marine Living Resources met online on 26 October 2020 in its first virtual meeting and was chaired by Dr D. Welsford (Australia).

1.2 Dr Welsford welcomed participants (Annex 1) to the first-ever online meeting of the Scientific Committee noting the changes to the normal meeting schedule necessitated by the COVID-19 pandemic. He thanked the participants and conveners for their intersessional engagement in the very successful online discussion meetings, and the documents submitted to the meeting (Annex 2), that had contributed greatly to the priorities of the Scientific Committee.

1.3 He reiterated the status of the convener summaries and the Chair's summary from the online discussion of the working groups and informal meeting of the Scientific Committee noting that these had provided a very useful opportunity to develop an understanding of the views of Members in preparation for this abbreviated meeting of SC-CAMLR-39 (Annex 3).

1.4 The Chair also noted that, given the very short period of time available for the meeting to discuss its business and adopt a report, there would not be time for translation of the report prior to adoption. He sought the understanding of Members in this regard and noted that simultaneous interpretation and closed captions of the meeting would be available throughout the meeting. Due to technical difficulties, the Scientific Committee was unable to consider all of its report, those paragraphs in the draft report that were not able to be considered have been retained in square brackets (see paragraph 6.1).

1.5 The Chair thanked the Secretariat for the extensive logistic and technical facilities that it had put in place to facilitate the first online meeting of the Scientific Committee. He noted that closed captioning of the meetings of the Scientific Committee was being provided to facilitate engagement in the meeting and that it does not represent the official record of the meeting. Copies of the transcript from the closed captions will be retained by the Secretariat for verification purposes and will not be made available or distributed by the Secretariat.

Harvested species

Catches in the Convention Area

2.1 The Scientific Committee noted the summary of catches of target species in the Convention Area in 2018/19 and 2019/20 (Tables 1 and 2) prepared by the Secretariat. It noted that the catch of krill in the 2019/20 season was the largest catch ever reported in Area 48 and that, in Subarea 48.1, the duration from the date on which 5% of the catch was taken to the date on which 95% of the catch was taken was 69 days, compared to an average of 130 days over

the previous five years. The Scientific Committee noted that the voluntary closures enacted by the Association of Responsible Krill harvesting companies (ARK) members are partially responsible for the shortened period of fishing operations.

Non-target catch species and VMEs

2.2 The Scientific Committee noted the discussions relating to non-target species and vulnerable marine ecosystems (VMEs) in SC-CAMLR-39/BG/60, paragraphs 20 to 25. The Scientific Committee encouraged further work on progressing the VME workplan outlined in WG-FSA-2019, Table 12, including the convening of a subgroup during the next WG-EMM meeting.

2.3 The Scientific Committee noted the analyses presented by the Secretariat detailing by-catch reporting on fishing vessels operating in both the longline and krill fisheries, and requested that the Secretariat repeat the vessel survey circulated in COMM CIRC 15/74–SC CIRC 15/44 for krill vessels to determine if lower by-catch rates in vessel data were due to procedural differences in by-catch recording and reporting on different vessels.

2.4 The Scientific Committee recommended that the by-catch analyses presented by the Secretariat be regularly presented to WG-FSA, to determine any changes in by-catch reporting frequency by longline and krill vessels.

2.5 The Scientific Committee noted that having an index of vessel reporting performance for by-catch species would be useful when assessing research proposals, and encouraged Members to develop such an index. Additionally, a more general vessel performance index could potentially take into account other indices currently used in research proposal assessments such as tagging performance.

2.6 The Scientific Committee discussed the report submitted by Norway on seabird interactions with net monitoring cables (SC-CAMLR-39/BG/59). The Scientific Committee noted that it was unclear to what extent the conditions of the trial outlined in SC-CAMLR-38, paragraph 5.14, had been addressed, noting that Norway is undertaking further analyses and will provide a complete report of the data collected during the 2019/20 season to the next meeting of WG-FSA.

[2.7 The Scientific Committee recommended the convening of an e-group under the terms of reference of the ad-hoc WG-IMAF, to work with Norway and other interested parties, to assess levels of seabird interactions and evaluate the design of mitigation measures deployed on krill trawl vessels using the continuous trawling method. The Scientific Committee expressed its appreciation of Norway and New Zealand for offering to facilitate this e-group.]

[2.8 The Scientific Committee recommended that any continuation of the Norwegian trial requires the formation of this e-group prior to the 2020/21 fishing season, to provide guidance on trial design which should include a higher level of bird strike observations than were present in the preliminary report, the use of infra-red cameras for quantifying both net monitoring cable and warp strikes that occur in low light conditions, the removal of the spotlight used on one vessel as lighting is known to attract seabirds, and additional or improved mitigation measures to protect the exposed warp and net monitoring cables such as seawater sprays or any other

effective options that may come up intersessionally. The e-group should consider whether the trial include observations of bird density around fishing vessels at all stages of fishing operation.]

Priorities for work of the Scientific Committee and its working groups

3.1 The Scientific Committee recalled priorities set out for consideration of working groups at SC-CAMLR-38 (SC-CAMLR-38, paragraph 13.4), noting that these remain relevant for the forthcoming intersessional period. The Scientific Committee noted the high priority for the revised krill fishery management procedure and the work required for the revision of Conservation Measure (CM) 51-07, updated integrated assessments and data-limited approaches for toothfish. In addition, the Scientific Committee noted that intersessional work focusing on seabird mitigation from krill fisheries, VMEs and climate change would be conducted through dedicated e-groups.

3.2 The Scientific Committee considered how to conduct its business next year given that it is uncertain that face-to-face meetings can be organised due to the COVID-19 pandemic. It was noted that, despite the difficulties of the past year, a lot of work has been done in the intersessional period and that this is reflected in the convener reports of the informal online sessions of the working groups, which were widely attended by Members and in many cases successfully hosted over 100 attendees. Some Members proposed that if the intersessional working group meetings or the Scientific Committee meetings would not be able to occur face to face, they should be able to be formally convened meetings organised through an online platform in an official capacity, including report adoption.

3.3 The Scientific Committee noted that while online meetings have some shortcomings, including technical and time limitations and time zone differences in comparison to in-person meetings, they also had some benefits, including:

(i) virtual sessions make it easier for smaller delegations to engage with the work of the Scientific Committee

(ii) attendance of external experts may be easier in virtual meetings

(iii) close captioning during the meeting is very helpful

(iv) savings in time and carbon emissions due to removing the need for air travel.

3.4 The Scientific Committee noted that planning for online meetings should include the following considerations:

(i) starting times of online meetings could be more diversified to ensure that the burden of meeting outside normal office hours is shared equitably

(ii) clear procedures would need to be established, for example with regard to paper submission deadlines and establishing an agenda

(iii) concern about connectivity issues, in particular related to report adoption with the restricted time availability and Members working in different time zones.

3.5 The Scientific Committee noted Part III of the Rules of Procedure of the Scientific Committee that describes the meetings of the Scientific Committee, in particular Rule 4 states that:

- The Committee shall meet as often as may be necessary to fulfil its functions.
- Regular meetings of the Committee normally shall be held once a year at the Headquarters of the Commission, unless it decides otherwise.

3.6 In order to provide a mechanism consistent with Rule 4 of the Rules of Procedure, the Scientific Committee recommended that in order to respond to prevailing conditions in deciding on the modality of its meetings in 2021 and enable an in-person meeting to proceed, that the following criteria be further considered intersessionally:

(i) there are no host government restrictions on holding a meeting which can accommodate all participants consistent with Rule 1 of the Rules of Procedure and there are no social distancing requirements that would preclude holding such a meeting

(ii) there are no host government restrictions on foreign nationals entering the country of the meeting from any of CCAMLR's Member countries or acquiring visas, and there are no quarantine restrictions for such entries

(iii) all Members of the Commission that wish to attend the meeting confirm that there are no domestic regulations in place or expected to be in place at the time of the meeting that would preclude them and their delegations travelling to the meeting, and that suitable flights are available.

3.7 In the event that the regular meeting in 2021 cannot be held at the Headquarters of the Commission, given restrictions associated with the COVID-19 pandemic and the criteria outlined above 120 days before the scheduled meeting, the Scientific Committee agreed that the Chair, in consultation with the Executive Secretary, may prepare a preliminary agenda and schedule for an online meeting.

3.8 In the event that the meetings of the subsidiary bodies in 2021 cannot be held in an in-person format, given the restrictions associated with the COVID-19 pandemic and the criteria outlined above 100 days before the scheduled meeting, the Scientific Committee agreed that the Chair and the conveners of the subsidiary bodies, in consultation with the Executive Secretary, may prepare a preliminary agenda and schedule for an online meeting.

3.9 The preparation of the provisional agenda and the conduct of an online meeting of the Scientific Committee, subsidiary body meeting or a meeting of Scientific Committee Representatives would follow the existing Rules of Procedure of the Scientific Committee.

3.10 The Chair of the Scientific Committee agreed to lead intersessional work, in consultation with the Secretariat and Scientific Committee Representatives, to develop an agreed procedure for conducting formal online meetings.

Other Scientific Committee matters

Special Areas for Scientific Study

[3.11 The Scientific Committee considered the proposal outlined in SC-CAMLR-39/02 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). The authors noted that the proposal meets the conditions as required by CM 24-04, providing all data required by the conservation measure in addition to supplementary information as requested at SC-CAMLR-38 (SC-CAMLR-38, paragraphs 6.13 to 6.20).]

[3.12 Many Members expressed the view that the scientific reasoning for designation as a Stage 2 SASS was justified, and that continued collaborative research in this area among Members should be encouraged noting that a German expedition is planned to this area by the *Polarstern* in 2024.]

[3.13 Some Members expressed views that:

(i) the priority research questions in this area should focus on the evolution of the exposed benthic ecosystem rather than on physical processes

(ii) there is not sufficient rationale for transferring to a Stage 2 SASS, and additional research is required to obtain baseline data to support designation.]

[3.14 The Scientific Committee noted that the purpose of a Stage 1 SASS designation is to offer immediate protection to a newly exposed area, while the Stage 2 SASS designation is to afford scientists the opportunity to prepare, organise and implement research in this region to address scientific priorities.]

[3.15 The Scientific Committee recommended that, should there be no agreement on progressing the designation of the newly exposed marine area adjacent to Pine Island Glacier (Subarea 88.3) as a Stage 2 SASS, and given the particular circumstances of this meeting, that there should be an extension of the Stage 1 SASS status to this area for an additional year, until 31 May 2022, to allow further discussion between Members to address outstanding concerns.]

Spatial planning – D1MPA

[3.16 The Scientific Committee considered CCAMLR-39/08 Rev. 1 and CCAMLR-39/09, regarding the Domain 1 marine protected area (D1MPA) proposal and noted:

(i) the concerns of some Members regarding the MPA proposal, recalling discussions at SC-CAMLR-38 (SC-CAMLR-38, paragraphs 6.52 and 6.54), with specific regard to expansion of the general protection zones (GPZs) in the southwest Antarctic Peninsula (SWAP) and the need for further scientific basis to support the establishment of an MPA in Domain 1

(ii) the concerns that closure of large areas of the SWAP could potentially reduce the ability to manage the spatial concentration of the fishery in other areas

(iii) the desire for conservation measures that establish an MPA to work in parallel with other fisheries management conservation measures to achieve the overall conservation objectives of CCAMLR

(iv) the clarification that while establishing an MPA may not mitigate the direct effects of climate change, it would reduce the impact of additional stressors on the marine ecosystem

(v) that the spatial designation of the MPA zones, including the GPZ, is based on current fishery concentrations rather than potential future fishery zones

(vi) that the proponents have previously provided peer-reviewed research indicating the potential impacts of concentrated fishing activities on predators (WG-EMM-2018, paragraph 4.41).]

[3.17 There was support from many Members for the establishment of a D1MPA, noting that the most recent proposal is based on the best available science, and that the Antarctic Peninsula is an important area for biodiversity that is highly susceptible to impact due to climate change. Those Members also recalled that in 2009 the Commission had tasked the Scientific Committee with developing recommendations for a representative system of MPAs to be implemented by 2012, and that previous MPAs have been referred to the Commission once the Scientific Committee was satisfied that the best available science has been considered in producing the proposal.]

Climate change

[3.18 The Scientific Committee considered SC-CAMLR-39/03 and encouraged Members to work intersessionally to develop new terms of reference for the 'climate change impacts and CCAMLR' e-group in order to further development of mechanisms to ensure the latest climate change research is integrated into the work of the Scientific Committee and considered in the development of management advice.]

Advice to the Commission

C. gunnari – Division 58.5.2

[4.1 The Scientific Committee considered SC-CAMLR-39/01 Rev. 1 which describes the annual stock assessment for mackerel icefish (*Champsocephalus gunnari*) in Division 58.5.2. The assessment followed standard methodology using the generalised yield model. The paper recommended that the catch limit for *C. gunnari* should be set at 1 276 tonnes in 2020/21 season and 1 047 tonnes in the 2021/22 season in Division 58.5.2.]

Research plans under CMs 24-01 and 21-02

4.2 The Scientific Committee recalled that the guidance provided by CCAMLR-38 in paragraph 5.64 for fishing where a research plan was required was that:

(i) Continuing research in closed areas submitted under CM 24-01, paragraph 3, would be limited to three years. After review by both WG-SAM and WG-FSA in the first year, they would be reviewed by WG-FSA in the next two years.

(ii) Continuing research in those exploratory fisheries submitted for those fisheries listed in CM 21-02, paragraph 6(iii), would be reviewed by both WG-SAM and WG-FSA in the first year and by WG-FSA every other year thereafter, unless otherwise specified.

4.3 The Scientific Committee further noted that, following this guidance:

(i) all continuing research under CM 21-02, paragraph 6(iii), had been reviewed by WG-FSA in 2019, therefore exploratory fisheries research plans in Subareas 48.6 and 58.4 did not require review this year

(ii) all research proposals under CM 24-01 did require review; new ones at WG-SAM and WG-FSA and continuing ones at WG-FSA: only those in Subarea 58.4 and the Ross Sea shelf survey were continuing research under CM 24-01. All other research proposals are new proposals.

4.4 However, the Scientific Committee further noted that no review had been possible for the new research proposals by the working groups this year, as they did not formally meet. The Scientific Committee also noted the information in CCAMLR-39/BG/05 that Russia submitted a research proposal for the special research zone (SRZ) in Subarea 88.1, but the required fee was not received by the Secretariat as required by CM 24-01, paragraph 6, and the proposal was therefore considered 'withdrawn'.

4.5 The Scientific Committee noted that the two proposals under CM 24-01 that were for continuing research (in Division 58.4.4b and the Ross Sea shelf survey) had been reviewed by WG-FSA in 2019 and there had been no recommendations for changes to be made at that time and the current proposal had not changed substantively since the last review.

Area 48

4.6 The Scientific Committee discussed the research proposal developed by Ukraine for continuing research on *Dissostichus* spp. in Subarea 48.1 (SC-CAMLR-39/BG/08). The Scientific Committee noted that the previous two years of research had not completed their objectives due to poor ice conditions and high by-catch rates.

4.7 The Scientific Committee could not reach consensus advice on the proposal by Ukraine and referred it to the Commission.

4.8 The Scientific Committee noted the withdrawal of a proposal by Ukraine to conduct a survey for *C. gunnari* in Subarea 48.2 (SC-CAMLR-39/BG/07).

4.9 The Scientific Committee discussed the research proposal developed by Chile for continuing research on *Dissostichus* spp. in Subarea 48.2 (SC-CAMLR-39/BG/09). The Scientific Committee noted that due to the quarantined data of Ukrainian vessels from this area, it was not possible to develop formal advice on catch limits for this research proposal and referred the matter to the Commission.

Area 58

4.10 The Scientific Committee recalled the discussions of SC-CAMLR-39/BG/10 (proposal to continue research in exploratory fishery in Divisions 58.4.1 and 58.4.2 from 2018/19 to 2021/22) and noted the reiteration of issues that had been raised in the past regarding the standardisation of fishing gear and survey design.

4.11 The Scientific Committee noted that many Members supported the proposed research plan as it had consistently achieved reporting milestones, had developed an integrated stock assessment for the area, and was considered to be using the best available scientific advice to develop catch limits for target and by-catch species.

4.12 Russia noted that it did not support the proposed multi-Member survey in Divisions 58.4.1 and 58.4.2 and stated that the survey should be considered a new research proposal.

4.13 The Scientific Committee could not achieve consensus on the research proposal and referred it to the Commission and provided options for catch limits in this fishery in Table 3.

Area 88

4.14 The Scientific Committee considered the allocation of catch for the Ross Sea shelf survey notified by New Zealand (SC-CAMLR-39/BG/03) within the Ross Sea region MPA (RSRMPA). The Scientific Committee recalled discussions in SC-CAMLR-38, paragraphs 3.136 to 3.138, and requested the Commission consider the options presented in Table 4 as consensus advice on the allocation for the survey catch could not be reached.

4.15 The Scientific Committee discussed the multi-Member research proposal on Antarctic toothfish (*D. mawsoni*) in Subarea 88.3 and noted some Members raised issues regarding the standardising of survey design and effective spatial tagging effort. The Scientific Committee did not reach consensus on the research proposal and referred it to the Commission.

Catch limits for 2020/21

4.16 The Scientific Committee recalled discussions regarding the proposed catch limits for 2020/21 presented in SC-CAMLR-39/BG/60, Tables 1 to 3.

4.17 Many Members noted that these proposed catch limits had been derived using the best available science and statistical procedures agreed upon by the Scientific Committee (such as the trend analysis, Chapman estimates and generalised yield model assessments).

4.18 Russia noted that since the working groups did not formally meet this year it was not able to support catch limits that have been discussed during informal meetings or online discussions and that catch limits should be derived from last year's advice that was agreed by the Commission.

4.19 The Scientific Committee agreed that, in accordance with its Rules of Procedure, it was appropriate to provide the proposed catch limits as well as the catch limits from last year in Table 5 to the Commission noting the difference of views expressed by the Scientific Committee.

Other business

[5.1 The Scientific Committee agreed to extend the roles of the current Vice-Chair Dr G. Zhu (China) and Junior Vice-Chair Dr A. Makhado (South Africa) for another year, due to COVID-19 limiting their participation in these roles. Both Vice-Chairs welcomed the confidence of the Scientific Committee in extending their respective terms.]

[5.2 The Scientific Committee thanked the conveners of the working groups for their hard work intersessionally and welcomed their agreement to continue in their roles for another year.]

[5.3 The Scientific Committee agreed to extend current scholarships for another 12 months, noting that the current recipients have not been able to attend working group meetings for which they were funded due to COVID-19. It was further suggested that scholarship recipients be invited to present their research at virtual meetings next year for discussion and feedback.]

[5.4 The Scientific Committee agreed that the CCAMLR Scientific Scholarships Review Panel had assessed the applications submitted to the Scientific Scholarship Scheme and announced the laureates of the 2020 scholarships:

(i) Dr Erica Carlig, from Italian National Research Council, who works on remote visual techniques for research and monitoring of marine communities in fast-ice covered coastal areas, and will focus on increasing knowledge of fish assemblages and benthic communities around Victoria Land in the RSRMPA GPZ. She will visit her mentor Dr S. Grant at the British Antarctic Survey, UK, and attend WG-EMM and the Scientific Committee meeting to present her results.

(ii) Dr Chris Oosthuizen, from Nelson Mandela University, South Africa, who works on the development of monitoring indices to quantify and characterise functional responses of penguins to changes in their prey field, which will contribute to improving ecosystem monitoring and for use in krill fisheries management. He will visit his mentor Dr A. Lowther (Norway) at the Norwegian Polar Institute, and attend WG-EMM to present his results.]

Adoption of the report

6.1 Noting the advice provided in paragraph 1.4, the Chair sought the views of Members on continuing the adoption process in the absence of interpretation and closed captions. As there were some Members that were unable to continue to participate in the report adoption process, the Chair advised that all non-adopted paragraphs from the draft report would be indicated by inclusion in square brackets in the final report (paragraphs 2.7, 2.8, 3.11 to 3.18, 4.1 and 5.1 to 5.4). He clarified that these paragraphs had not been adopted by the Scientific Committee because they could not be dealt with due to technical difficulties associated with the unprecedented circumstances of this meeting.

Close of the meeting

7.1 Dr Welsford thanked all participants for their hard work and patience and encouraged all Members to work cooperatively to facilitate the ongoing priorities of the Scientific Committee. He expressed his disappointment that there was text of the Scientific Committee report that remained unadopted, however, he suggested that this simply reflected the unprecedented circumstances faced by the Scientific Committee and its Members this year.

7.2 Dr Welsford undertook to present the advice of the Scientific Committee to the Commission and in doing so to make clear those elements that represented the agreement of the Scientific Committee.

7.3 Dr Reid, on behalf of the Scientific Committee, thanked Dr Welsford for his patience and responsiveness to the unique circumstances of this year's meeting which had made more progress than many believed possible. He further encouraged Dr Welsford to continue to show the leadership that had characterised this year's discussions leading up to, and including, the meeting of the Scientific Committee.

Table 1: Total catches (tonnes) of target species from directed fishing in 2018/19, including catches taken during scientific surveys.

Member	Target species	Subarea/division														Total
		48.1	48.2	48.3	48.4	48.6	58.4.2	58.4.4b	58.5.1	58.5.2	58.6	58.7	88.1	88.2	88.3	
Australia	*C. gunnari*									443						443
Total	*C. gunnari*	0	0	0	0	0	0	0	0	443	0	0	0	0	0	443
Australia	*D. eleginoides*						<1			3 402						3 402
Chile	*D. eleginoides*			326												326
France	*D. eleginoides*							<1	5 270		825					6 096
Japan	*D. eleginoides*					6		10								16
Korea	*D. eleginoides*														<1	<1
New Zealand	*D. eleginoides*		<1	369	9								<1			379
South Africa	*D. eleginoides*											266				266
Spain	*D. eleginoides*					<1										<1
Ukraine	*D. eleginoides*		<1													<1
United Kingdom	*D. eleginoides*		<1	1 126	9											1 134
Uruguay	*D. eleginoides*			304												304
Total	*D. eleginoides*	0	<1	2 124	17	6	<1	11	5 270	3 402	825	266	<1	0	<1	11 924
Australia	*D. mawsoni*						33			2			12	176		223
France	*D. mawsoni*						16									16
Japan	*D. mawsoni*					194										194
Korea	*D. mawsoni*												651	103	63	817
New Zealand	*D. mawsoni*		5		16								723			745
Russia	*D. mawsoni*												343	51		393
Spain	*D. mawsoni*					182							302			484
Ukraine	*D. mawsoni*	9	23										254	187		472
United Kingdom	*D. mawsoni*		7		49								725	64		845
Uruguay	*D. mawsoni*												36	173		210
Total	*D. mawsoni*	9	35	0	65	376	50	0	0	2	0	0	3 046	753	63	4 399
Chile	*E. superba*	10 726	10 405													21 131
China	*E. superba*	26 085	16 038	8 288			12									50 423
Korea	*E. superba*	27 157	13 840	1 942												42 939
Norway	*E. superba*	80 718	110 972	61 569												253 259
Ukraine	*E. superba*	11 109	11 318													22 427
Total	*E. superba*	155 795	162 574	71 799	0	0	12	0	0	0	0	0	0	0	0	390 180

Table 2: Preliminary total catches (tonnes) from directed fishing in 2019/20. Includes catch taken during research activities.

Member	Target species	Subarea/division														Total
		48.1	48.2	48.3	48.4	48.6	58.4.2	58.4.4b	58.5.1	58.5.2	58.6	58.7	88.1	88.2	88.3	
Australia	*C. gunnari*									503						503
Total	*C. gunnari*	0	0	0	0	0	0	0	0	503	0	0	0	0	0	503
Australia	*D. eleginoides*						<1			2 683						2 683
Chile	*D. eleginoides*			360												360
France	*D. eleginoides*							<1	3 228		568					3 797
Korea	*D. eleginoides*														<1	<1
New Zealand	*D. eleginoides*			310	16								<1			327
South Africa	*D. eleginoides*					<1						255				256
Spain	*D. eleginoides*					4										4
Ukraine	*D. eleginoides*	<1											<1			<1
United Kingdom	*D. eleginoides*			1 214	3											1 217
Total	*D. eleginoides*	<1	0	1 884	19	4	<1	<1	3 228	2 683	568	255	<1	0	<1	8 642
Australia	*D. mawsoni*						40			<1			71	149		260
Chile	*D. mawsoni*												14			14
France	*D. mawsoni*						18									18
Japan	*D. mawsoni*					112										112
Korea	*D. mawsoni*												1 052	4	84	1 139
New Zealand	*D. mawsoni*			<1	11								410	12		434
Russia	*D. mawsoni*												366			366
South Africa	*D. mawsoni*					82										82
Spain	*D. mawsoni*					138							191			329
Ukraine	*D. mawsoni*	15											311	195	13	533
United Kingdom	*D. mawsoni*				33								491	204		727
Uruguay	*D. mawsoni*												66	80		146
Total	*D. mawsoni*	15	0	<1	44	333	58	0	0	<1	0	0	2 972	643	96	4 160
Chile	*E. superba*	3 121	11 175	7 374												21 670
China	*E. superba*	41 174	48 327	28 853												118 353
Korea	*E. superba*	13 332	19 986	11 249												44 567
Norway	*E. superba*	88 945	84 685	67 792												241 422
Ukraine	*E. superba*	10 510	10 260													20 770
Total	*E. superba*	157 081	174 433	115 268	0	0	0	0	0	0	0	0	0	0	0	446 783

Table 3: Potential options for determining catch limits in Divisions 58.4.1 and 58.4.3a given the absence of directed fishing in the past two years. Option A – is the catch limit set for 2018/19 using the trend analysis approach incorporating data to the last year that fishing took place, Option B is the catch limit from 2019/20 based on the last catch limit agreed by the Commission, Option C is the catch limit based on the agreed trend analysis approach up to 2020. AUS – Australia; ESP – Spain; FRA – France; JPN – Japan; KOR – Republic of Korea.

Subarea/ division	Fishing area	Target species	Catch limit			Conservation measure	Notified Members
			2018/19 Option A	2019/20 Option B	2020/21 Option C		
58.4.1	5841_1	*D. mawsoni*	115	138	166	41-11, 33-03	AUS, ESP, JPN, KOR, FRA[1]
	5841_2	*D. mawsoni*	116	139	167	41-11, 33-03	AUS, ESP, JPN, KOR, FRA[1]
	5841_3	*D. mawsoni*	149	119	95	41-11, 33-03	AUS, ESP, JPN, KOR, FRA[1]
	5841_4	*D. mawsoni*	19	23	0	41-11, 33-03	AUS, ESP, JPN, KOR, FRA[1]
	5841_5	*D. mawsoni*	50	60	72	41-11, 33-03	AUS, ESP, JPN, KOR, FRA[1]
	5841_6	*D. mawsoni*	130	104	83	41-11, 33-03	AUS, ESP, JPN, KOR, FRA[1]
	Total	*D. mawsoni*	579	583	583	41-11, 33-03	AUS, ESP, JPN, KOR, FRA[1]
58.4.3a	5843a_1	*D. eleginoides*	30	24	19	41-06, 33-03	None

[1] See COMM CIRC 20/78 in respect of notification from France.

Table 4: Potential catch allocation methods for the Ross Sea Shelf Survey. Method 1 was used for the 2017/18–2018/19 seasons which allocates the survey catch from the overall catch limit for the Ross Sea region toothfish fishery, Method 2 allocates the shelf survey catch limit from the special research zone catch limit, as agreed for the 2020 season and Method 3 is based on the allocation of 15% to the SRZ first then subtracting the survey catch limit from the remainder. Relevant conservation measure text is in CM 91-05, paragraphs 8(ii) and 28.

Area	Percent	No survey	Method 1 (2017/18–2018/19)	Method 2 (2019/20)	Method 3 (SC-CAMLR-39/BG/03)
North of 70°S	19	597	584	597	582
South of 70°S	66	2072	2029	2072	2022
Special research zone	15	471	461	406	471
Shelf survey	-	-	65	65	65
Total		3140	3140	3140	3140

Table 5: Proposed catch limit (in tonnes) for consideration by the Commission for 2020/21. AUS – Australia; CHL – Chile; ESP – Spain; FRA – France; GBR – United Kingdom; JPN – Japan; KOR – Republic of Korea; NZL – New Zealand; RUS – Russia; UKR – Ukraine; ZAF – South Africa. NB: by-catch limits are based on the 2020/21 catch limits where applicable.

Subarea/ division	Fishing area	Target species	Catch limit			Skates and rays	*Macrourus* spp.	Other species	Conservation measure	Notified Members
			2018/19	2019/20	2020/21					
48.1	481_1 and 481_2	*D. mawsoni*		43	43		21		24-05	UKR
48.2	482_N	*Dissostichus* spp.			TBD				24-05	CHL
	482_S	*Dissostichus* spp.			TBD				24-05	CHL
48.3	483A	*D. eleginoides*		0	0			See CM 33-01	41-02, 33-01	Not applicable
	483B	*D. eleginoides*		698	698[a]			See CM 33-01	41-02, 33-01	Not applicable
	483C	*D. eleginoides*		1629	1629[a]			See CM 33-01	41-02, 33-01	Not applicable
	Total	*D. eleginoides*		2327	2327[a]	116	116	See CM 33-01	41-02, 33-01	Not applicable
	483	*C. gunnari*		3225	2132[a]			See CM 33-01	42-01, 33-01	Not applicable
48.4	484	*D. eleginoides*		27	27				41-03	Not applicable
	484	*D. mawsoni*		45	55				41-03	Not applicable
48.6	486_2	*D. mawsoni*		140	112	5	17	17	41-04, 33-03	JPN, ESP, ZAF
	486_3	*D. mawsoni*		38	30	1	4	4	41-04, 33-03	JPN, ESP, ZAF
	486_4	*D. mawsoni*		163	196	9	31	31	41-04, 33-03	JPN, ESP, ZAF
	486_5	*D. mawsoni*		329	263	13	42	42	41-04, 33-03	JPN, ESP, ZAF
	Total	*D. mawsoni*		670	601	28	94	94	41-04, 33-03	JPN, ESP, ZAF

(continued)

Table 5 (continued)

Subarea/ division	Fishing area	Target Species	Catch limit			Skates and rays	*Macrourus* spp.	Other species	Conservation measure	Notified Members
			2018/19	2019/20	2020/21					
58.4.1	5841_1	*D. mawsoni*	115	138	See Table 3				41-11, 33-03	AUS, ESP, JPN, KOR, FRA[b]
	5841_2	*D. mawsoni*	116	139	See Table 3				41-11, 33-03	AUS, ESP, JPN, KOR, FRA[b]
	5841_3	*D. mawsoni*	149	119	See Table 3				41-11, 33-03	AUS, ESP, JPN, KOR, FRA[b]
	5841_4	*D. mawsoni*	19	23	See Table 3				41-11, 33-03	AUS, ESP, JPN, KOR, FRA[b]
	5841_5	*D. mawsoni*	50	60	See Table 3				41-11, 33-03	AUS, ESP, JPN, KOR, FRA[b]
	5841_6	*D. mawsoni*	130	104	See Table 3				41-11, 33-03	AUS, ESP, JPN, KOR, FRA[b]
	Total	*D. mawsoni*	579	583	See Table 3				41-11, 33-03	AUS, ESP, JPN, KOR, FRA[b]
58.4.2	5842_1	*D. mawsoni*		60	72	3	11	11	41-05, 33-03	AUS, JPN, FRA[b]
58.4.3a	5843a_1	*D. eleginoides*	30	24	See Table 3				41-06, 33-03	None
58.4.3b	5843b	*D. mawsoni*		0	0	0	0	0	41-07, 33-03	None
58.4.4	5844b_1	*D. eleginoides*		23	18				24-05	FRA, JPN
	5844b_2	*D. eleginoides*		18	14				24-05	FRA, JPN
	Total	*D. eleginoides*		41	32				24-05	FRA, JPN
58.5.2	5852	*D. eleginoides*		3030	3030[a]			CM 33-02	41-08, 33-02	Not applicable
58.5.2	5852	*C. gunnari*		527	1276			CM 33-02	42-02, 33-02	Not applicable

(continued)

Table 5 (continued)

Subarea/ division	Fishing area	Target species	Catch limit			Skates and rays	*Macrourus* spp.	Other species	Conservation measure	Notified Members
			2018/19	2019/20	2020/21					
88.1 and 882A–B	N70	*D. mawsoni*		597	See Table 4	29	93	29	41-09	AUS, ESP, GBR, JPN, KOR, NZL, RUS, UKR
	S70	*D. mawsoni*		2072	See Table 4	101	323	101	41-09	AUS, ESP, GBR, JPN, KOR, NZL, RUS, UKR
	SRZ	*D. mawsoni*		426	See Table 4	23	75	23	41-09	AUS, ESP, GBR, JPN, KOR, NZL, RUS, UKR
	Shelf survey	*D. mawsoni*		45	See Table 4				24-05,41-09	NZL
	SRZ	*D. mawsoni*			140				24-05	RUS
	Total	*D. mawsoni*		3140	3140	157	502		41-09	AUS, ESP, GBR, JPN, KOR, NZL, RUS, UKR
88.2	882_1	*D. mawsoni*		192	195	10	31	31	41-10, 33-03	AUS, ESP, GBR, KOR, NZL, RUS, UKR
	882_2	*D. mawsoni*		232	186	9	30	30	41-10, 33-03	AUS, ESP, GBR, KOR, NZL, RUS, UKR
	882_3	*D. mawsoni*		182	170	8	27	27	41-10, 33-03	AUS, ESP, GBR, KOR, NZL, RUS, UKR
	882_4	*D. mawsoni*		128	154	8	25	25	41-10, 33-03	AUS, ESP, GBR, KOR, NZL, RUS, UKR
	882H	*D. mawsoni*		160	128	6	20	20	41-10, 33-03	AUS, ESP, GBR, KOR, NZL, RUS, UKR
	Total	*D. mawsoni*		894	833	41	133	133	41-10, 33-03	AUS, ESP, GBR, KOR, NZL, RUS, UKR

(continued)

Table 5 (continued)

Subarea/ division	Fishing area	Target species	Catch limit			Skates and rays	*Macrourus* spp.	Other species	Conservation measure	Notified Members
			2018/19	2019/20	2020/21					
88.3	883_1	*D. mawsoni*		16	13				24-05	KOR, UKR
	883_2	*D. mawsoni*		20	16				24-05	KOR, UKR
	883_3	*D. mawsoni*		60	72				24-05	KOR, UKR
	883_4	*D. mawsoni*		60	72				24-05	KOR, UKR
	883_5	*D. mawsoni*		8	6				24-05	KOR, UKR
	883_6	*D. mawsoni*		30	30				24-05	KOR, UKR
	883_7	*D. mawsoni*		30	30				24-05	KOR, UKR
	883_8	*D. mawsoni*		10	10				24-05	KOR, UKR
	883_9	*D. mawsoni*		10	10				24-05	KOR, UKR
	883_10	*D. mawsoni*		10	10				24-05	KOR, UKR
	Total	*D. mawsoni*		254	269				24-05	KOR, UKR

[a] Catch limits in existing conservation measures apply to 2020/21.
[b] See COMM CIRC 20/78 in respect of notification from France.

Annex 1

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Annex 2

List of Documents

List of Documents

SC-CAMLR-39/01 Rev. 1	Assessment of mackerel icefish (*Champsocephalus gunnari*) in Division 58.5.2 based on results from the 2020 random stratified trawl survey Delegation of Australia
SC-CAMLR-39/02	Update on the proposed designation of a newly exposed marine area adjacent to Pine Island Glacier (Subarea 88.3) as a Stage 2 Special Area for Scientific Study S.M. Grant, L. Ireland, A.E. Hogg, K. Gohl, H.J. Griffiths, K.L. Linse and P.N. Trathan
SC-CAMLR-39/03	Identifying and integrating relevant scientific research outputs on climate change into the work of the Scientific Committee and its Working Groups Delegations of the United Kingdom, Argentina, Australia, Belgium, Norway and Sweden
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SC-CAMLR-39/BG/01	Research Plan under CM 24-01, paragraph 3. New research program to examine the life-cycle and resource potential of *Dissostichus* spp. in the Special Research Zone within the Ross Sea region Marine protected area (RSRMPA) in 2020/21–2022/23 Delegation of the Russian Federation
SC-CAMLR-39/BG/02	Research Plan under CM 21-02, paragraph 6. Proposal for new multi-Member research on *Dissostichus* spp. in Divisions 58.4.1 and 58.4.2 for the seasons 2020/21–2022/23 Delegation of the Russian Federation
SC-CAMLR-39/BG/03	Notification for the Ross Sea shelf survey in 2021 Delegation of New Zealand
SC-CAMLR-39/BG/04	Proposal for continuing research on Antarctic toothfish (*Dissostichus mawsoni*) in Statistical Subarea 48.6 in 2020/21: Research Plan under CM 21-02, paragraph 6(iii) Delegations of Japan, South Africa and Spain
SC-CAMLR-39/BG/05 Rev. 1	Proposal for continuing research plan on Patagonian toothfish (*Dissostichus eleginoides*) in Division 58.4.4b (2016/17–2020/21): Research Plan under CM 24-01, paragraph 3 Delegations of Japan and France

SC-CAMLR-39/BG/06	Research proposal for Dissostichus spp. under CM 24-01, paragraph 3 to develop a fishery in Subarea 88.3 by Korea and Ukraine from 2020/21 to 2022/23 Delegations of the Republic of Korea and Ukraine
SC-CAMLR-39/BG/07	Proposal to conduct a local survey of the *Champsocephalus gunnari* in the Statistical Subarea 48.2 Delegation of Ukraine
SC-CAMLR-39/BG/08	Research plan for the continuation of toothfish survey in Subarea 48.1 by the Ukrainian vessel CALIPSO in a season 2020/21 Delegation of Ukraine
SC-CAMLR-39/BG/09	Longline survey of toothfish distribution and abundance on the Statistical Subarea 48.2: A new research plan under CM 24-01, paragraph 3 Delegation of Chile
SC-CAMLR-39/BG/10	Continuing research in the *Dissostichus mawsoni* exploratory fishery in East Antarctica (Divisions 58.4.1 and 58.4.2) from 2018/19 to 2021/22; Research plan under CM 21-02, paragraph 6(iii) Delegations of Australia, France, Japan, Republic of Korea and Spain
SC-CAMLR-39/BG/11	Planned updates for the krill fishery management Risk Assessment framework P.N. Trathan, V. Warwick-Evans, S. Fielding, E.J. Murphy, N. Kelly, D. Welsford, L. Dalla Rosa, E. Secchi, E. Seyboth, B.A. Krafft, J. Hinke, C. Reiss and G. Watters
SC-CAMLR-39/BG/12	The United Nations' Intergovernmental Panel on Climate Change's (IPCC) Special Report on the Ocean and Cryosphere in a Changing Climate: what does CCAMLR need to know? R.D. Cavanagh, P.N. Trathan, S.M. Grant, S. Hill, P. Hollyman, B.A. Krafft, J. Melbourne-Thomas, M. Meredith, M.M.C. Muelbert, E.J. Murphy, M. Sommerkorn and J. Turner
SC-CAMLR-39/BG/13	Evaluation of the achievement of WSMPA conservation features and their target values for WSMPA Phase 1 K. Teschke, S. Hain, H. Pehlke, P. Brtnik, G. Griffith, A. Lowther and T. Brey

SC-CAMLR-39/BG/14	Co-conveners' summary of WG-ASAM-2020 e-group discussions WG-ASAM Co-conveners (S. Fielding and X. Wang)
SC-CAMLR-39/BG/15	Co-conveners' summary of WG-SAM-2020 e-group discussions WG-SAM Co-conveners (C. Péron and T. Okuda)
SC-CAMLR-39/BG/16	Convener's summary of WG-EMM-2020 e-group discussions WG-EMM Convener (C. Cárdenas)
SC-CAMLR-39/BG/17	Report on United States research and monitoring in support of the Ross Sea region Marine Protected Area Delegation of the USA
SC-CAMLR-39/BG/18	Recommendations for CCAMLR to take a proactive role addressing climate change in the Southern Ocean Submitted by ASOC
SC-CAMLR-39/BG/19	Generalised R Yield Model (Grym) D. Maschette, S. Wotherspoon, C. Pavez, P. Ziegler, S. Thanassekos, K. Reid, S. Kawaguchi, D. Welsford and A. Constable
SC-CAMLR-39/BG/20	Progress report on the scientific data compilation and analyses in support of the planning of Phase 2 of the Weddell Sea Marine Protected Area (WSMPA) G. Griffith, B. Njåstad, C. von Quillfeldt, T. Hattermann, Y. Kasajima, S. Moreau, J. Aarflot, B. Merkel, K. Teschke, H. Pehlke, T. Brey, A. Lowther, P. Trathan, S. Thorpe and E. Murphy
SC-CAMLR-39/BG/21	The Scientific Committee on Antarctic Research Annual Report 2019/20 Submitted by SCAR
SC-CAMLR-39/BG/22	Climate change and CCAMLR – update on recent research Submitted by SCAR
SC-CAMLR-39/BG/23	The retrospective analysis of Antarctic tracking data identifies areas of ecological significance in the Southern Ocean Submitted by SCAR

SC-CAMLR-39/BG/24	Successful ecosystem-based management of Antarctic krill should address uncertainties in krill recruitment, behaviour and ecological adaptation B. Meyer, A. Atkinson, K.S. Bernard, A.S. Brierley, R. Driscoll, S. Hill, E. Marschoff, D. Maschette, F.A. Perry, C.S. Reiss, E. Rombolá, G. Tarling, S.E. Thorpe, P.N. Trathan, G. Zhu and S. Kawaguchi *Communication Earth & Environment-Nature* (in press)
SC-CAMLR-39/BG/25	Summary of the toothfish fishery and tagging program in the Amundsen Sea region (SSRUs 882C–H) to 2019/20 J. Devine
SC-CAMLR-39/BG/26	Characterisation of the toothfish fishery in the Ross Sea region (Subarea 88.1 and SSRUs 882A–B) through 2019/20 J. Devine and S. Parker
SC-CAMLR-39/BG/27	Analysis of the impact of misreporting by Ukraine on the 2019 stock assessment model for Antarctic toothfish (*Dissostichus mawsoni*) in the Ross Sea region A. Dunn, S. Parker and K. Demianenko
SC-CAMLR-39/BG/28	2020 Ross Sea shelf survey results S. Parker, D. MacGibbon and I. Slypko
SC-CAMLR-39/BG/29	Second winter survey of Antarctic toothfish (*Dissostichus mawsoni*) in the Ross Sea region S. Parker and D. DiBlasi
SC-CAMLR-39/BG/30	Overview and progress of macrourid studies in the Ross Sea region S. Parker, J. Devine, B. Moore and Y. Ladroit
SC-CAMLR-39/BG/31	Tagging and recapture protocols for skates in the Ross Sea region S. Parker, B. Finucci and M. Francis
SC-CAMLR-39/BG/32	New Zealand research and monitoring in the Ross Sea region in support of the Ross Sea region Marine Protected Area: 2020 update M. Pinkerton
SC-CAMLR-39/BG/33	Hypothetical stock structure of Antarctic toothfish in the Pacific sector (FAO Statistical Area 88) S. Parker, B. Moore, E. Behrens, J. Devine, S.D. Chung and I. Slypko

SC-CAMLR-39/BG/34	Summary of Antarctic toothfish tagging data through 2020 and projected recaptures in Subarea 88.3 J. Devine and S. Parker
SC-CAMLR-39/BG/35	Estimates of abundance of *Dissostichus eleginoides* and *Champsocephalus gunnari* from the random stratified trawl survey in the waters surrounding Heard Island in Division 58.5.2 for 2020 Delegation of Australia
SC-CAMLR-39/BG/36	Update on the Heard Island and McDonald Islands Patagonian toothfish (*Dissostichus eleginoides*) fishery in Division 58.5.2 Delegation of Australia
SC-CAMLR-39/BG/37	Report on exploratory fishing in Divisions 58.4.1 and 58.4.2 between the 2011/12 and 2019/20 fishing seasons Delegation of Australia
SC-CAMLR-39/BG/38	Preliminary integrated stock assessment for the Antarctic toothfish (*Dissostichus mawsoni*) fishery in Divisions 58.41 and 58.4.2 Delegation of Australia
SC-CAMLR-39/BG/39	Spatial distribution and biology of *Dissostichus mawsoni* in Subarea 88.3, with notes on by-catch species S. Chung, B. Moore, I. Slypko, S.-G. Choi and S. Parker
SC-CAMLR-39/BG/40	Molecular analysis of stomach contents from Antarctic toothfish (*Dissostichus mawsoni*) collected from Areas 58 and 88 from 2016 to 2020 S.R. Lee, S.-G. Choi, S. Chung, D.H. An and H.-W. Kim
SC-CAMLR-39/BG/41	Genetic diversity and population structure of the Antarctic toothfish, *Dissostichus mawsoni* from the Subareas 88 and 58 (58.4, 58.5) in the Antarctic Ocean based on a combined analysis of mitochondrial and microsatellite DNA markers H.-K. Choi, J.E. Jang, S.Y. Byeon, Y.R. Kim, S. Chung, S.-G. Choi, H.-W. Kim, D. Maschette and H.J. Lee
SC-CAMLR-39/BG/42	Myctobase: toward a circumpolar database of mesopelagic fishes for new insights into mesopelagic prey fields B. Woods, R. Trebilco, A. Walters, M. Hindell and A. Van de Putte

SC-CAMLR-39/BG/43	The UN Decade of Ocean Science for Sustainable Development and the Southern Ocean Delegation of Belgium and the Southern Ocean Observation System
SC-CAMLR-39/BG/44	Report on fish by-catch in the exploratory toothfish fishery in Divisions 58.4.1 and 58.4.2 between 2014 and 2020 Delegations of France and Australia
SC-CAMLR-39/BG/45	Information about a Workshop for Training Russian Scientific Observers and Inspectors to Work in Fisheries in the CAMLR Convention Area Delegation of the Russian Federation
SC-CAMLR-39/BG/46 Rev. 1	2020 Report to CCAMLR by Oceanites, Inc. – Antarctic Site Inventory / MAPPPD and Related Projects / State of Antarctic Penguins 2020 Report and Penguin Population Changes / Climate Analyses / Recent, Notable Scientific Papers Relating to MAPPPD Submitted by Oceanites, Inc.
SC-CAMLR-39/BG/47	Progress toward ecosystem-based management of the Antarctic krill fishery Submitted by ASOC
SC-CAMLR-39/BG/48	Trials of scientific electronic monitoring by FV *Marigolds* and FV *Greenstar* in the Bellingshausen Sea (Subarea 88.3) S. Chung, I. Slypko, S.-G. Choi, K. Demianenko and S. Parker
SC-CAMLR-39/BG/49	Updating knowledge of successful egg and larval transport of *Dissostichus mawsoni* in the East Antarctic region: assessing three potential spawning and recruitment scenarios using satellite derived datasets M. Mori, K. Mizobata, T. Okuda and T. Ichii
SC-CAMLR-39/BG/50	Annual report of research fishing operations at Subarea 48.6 in the 2019/20 fishing season Delegations of Japan, Spain and South Africa
SC-CAMLR-39/BG/51	Updating CASAL model for *D. eleginoides* at Division 58.4.4b T. Okuda, Y. Osawa and F. Massiot-Granier
SC-CAMLR-39/BG/52	Annual report of research fishing operations at Division 58.4.4b in the 2019/20 fishing season Delegations of Japan and France

SC-CAMLR-39/BG/53	Italy research and monitoring in the Ross Sea region in support of the Ross Sea region Marine Protected Area: 2020 update L. Ghigliotti, M. Azzaro and M. Vacchi
SC-CAMLR-39/BG/54	Setting out a structure for WG-FSA advice on the management of Antarctic krill (*Euphausia superba*) in Subarea 48.1 C. Darby
SC-CAMLR-39/BG/55	Preliminary tag-recapture based population assessment of Antarctic toothfish (*Dissostichus mawsoni*) in Subarea 48.4 – 2019/20 fishing season T. Earl and A. Riley
SC-CAMLR-39/BG/56	Feasibility of establishing limits on use of continuous fishing system for the krill fishery in the Area 48 Delegation of Ukraine
SC-CAMLR-39/BG/57	A summary of catches of target species in the Convention Area in 2018/19 and 2019/20 Secretariat
SC-CAMLR-39/BG/58	Convener's summary of WG-FSA-2020 e-group discussions WG-FSA Convener (S. Somhlaba)
SC-CAMLR-39/BG/59	Monitoring cable and bird strike trials Delegation of Norway
SC-CAMLR-39/BG/60	Chair's Summary of the Informal meeting of SC-CAMLR-39 Chair of the Scientific Committee (Dr D. Welsford)
SC-CAMLR-39/BG/61	Request for Scientific Committee Advice from the Standing Committee on Implementation and Compliance (SCIC) and the Standing Committee on Administration and Finance (SCAF) Chair of the Scientific Committee (Dr D. Welsford)

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Other Documents

CCAMLR-39/08 Rev. 1	Revised proposal for a conservation measure establishing a Marine Protected Area in Domain 1 (Western Antarctic Peninsula and South Scotia Arc) Delegations of Argentina and Chile

CCAMLR-39/09	Re-emphasising the importance of the D1MPA proposal for the conservation of the Antarctic marine ecosystem under scenarios of environmental and management uncertainties Delegations of Argentina and Chile
CCAMLR-39/BG/02	Domain 1 MPA Proposal CM 91-XX: Rationale of the changes for the Proposal for the Establishment of a Marine Protected Area in the Western Antarctic Peninsula–South Scotia Arc Delegations of Argentina and Chile
CCAMLR-39/BG/10	2020 Report to SC-CAMLR-39 and CCAMLR-39 by the Association of Responsible Krill harvesting companies (ARK) Submitted by ARK

Annex 3

Agenda for the Thirty-ninth Meeting
of the Scientific Committee

Agenda for the Thirty-ninth Meeting of the Scientific Committee for the Conservation of Antarctic Marine Living Resources

1. Opening of the meeting
2. Harvested species
3. Priorities for work of the Scientific Committee and its working groups
4. Advice to the Commission
5. Adoption of report of the Thirty-ninth Meeting.

Annex 4

Glossary of acronyms and abbreviations used in SC-CAMLR reports

Glossary of acronyms and abbreviations used in SC-CAMLR reports

AAD	Australian Government Antarctic Division
ACAP	Agreement on the Conservation of Albatrosses and Petrels
ACAP BSWG	ACAP Breeding Sites Working Group (BSWG)
ACC	Antarctic Circumpolar Current
ACW	Antarctic Circumpolar Wave
ADCP	Acoustic Doppler Current Profiler (mounted on the hull)
ADL	Aerobic Dive Limit
AEM	Ageing Error Matrix
AFMA	Australian Fisheries Management Authority
AFZ	Australian Fishing Zone
AIS	Automatic Identification System
AKES	Antarctic Krill and Ecosystem Studies
ALK	Age–length Key
AMD	Antarctic Master Directory
AMES	Antarctic Marine Ecosystem Studies
AMLR	Antarctic Marine Living Resources
AMSR-E	Advanced Microwave Scanning Radiometer – Earth Observing System
ANDEEP	Antarctic Benthic Deep-sea Biodiversity
APBSW	Bransfield Strait West (SSMU)
APDPE	Drake Passage East (SSMU)
APDPW	Drake Passage West (SSMU)
APE	Antarctic Peninsula East (SSMU)
APEC	Asia-Pacific Economic Cooperation
APECS	Association of Polar Early Career Scientists

APEI	Elephant Island (SSMU)
APEME Steering Committee	Steering Committee on Antarctic Plausible Ecosystem Modelling Efforts
APIS	Antarctic Pack-Ice Seals Program (SCAR-GSS)
APW	Antarctic Peninsula West (SSMU)
ARK	Association of Responsible Krill harvesting companies
ASE	Assessment Strategy Evaluation
ASI	Antarctic Site Inventory
ASIP	Antarctic Site Inventory Project
ASMA	Antarctic Specially Managed Area
ASOC	Antarctic and Southern Ocean Coalition
ASPA	Antarctic Specially Protected Area
ASPM	Age-Structured Production Model
ATCM	Antarctic Treaty Consultative Meeting
ATCP	Antarctic Treaty Consultative Party
ATME	Antarctic Treaty Meeting of Experts on the Impacts of Climate Change for Management and Governance of the Antarctic region
ATS	Antarctic Treaty System
ATSCM	Antarctic Treaty Special Consultative Meeting
AVHRR	Advanced Very High Resolution Radiometry
BAS	British Antarctic Survey
BED	Bird Excluder Device
BICS	Benthic Impact Camera System
BIOMASS	Biological Investigations of Marine Antarctic Systems and Stocks (SCAR/SCOR)
BROKE	Baseline Research on Oceanography, Krill and the Environment
BRT	Boosted Regression Trees

CAC	Comprehensive Assessment of Compliance
cADL	calculated Aerobic Dive Limit
CAF	Central Ageing Facility
CAML	Census of Antarctic Marine Life
CAMLR Convention	Convention on the Conservation of Antarctic Marine Living Resources
CAML SSC	CAML Scientific Steering Committee
CAR	Comprehensiveness, Adequacy, Representativeness
CASAL	C++ Algorithmic Stock Assessment Laboratory
CBD	Convention on Biodiversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCAMLR-2000 Survey	CCAMLR 2000 Krill Synoptic Survey of Area 48
CCAMLR-IPY-2008 Survey	CCAMLR-IPY 2008 Krill Synoptic Survey in the South Atlantic Region
CCAS	Convention on the Conservation of Antarctic Seals
CCEP	CCAMLR Compliance Evaluation Procedure
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CCSBT-ERS WG	CCSBT Ecologically Related Species Working Group
CDS	Catch Documentation Scheme for *Dissostichus* spp.
CDW	Circumpolar Deep Water
CEMP	CCAMLR Ecosystem Monitoring Program
CEP	Committee for Environmental Protection
CF	Conversion Factor
CircAntCML	Circum-Antarctic Census of Antarctic Marine Life
CITES	Convention on International Trade in Endangered Species
CM	Conservation Measure

CMIR	CCAMLR MPA Information Repository
CMIX	CCAMLR's Mixture Analysis Program
CMP	Conservation Management Plan
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COFI	Committee on Fisheries (FAO)
COLTO	Coalition of Legal Toothfish Operators
CoML	Census of Marine Life
COMM CIRC	Commission Circular (CCAMLR)
COMNAP	Council of Managers of National Antarctic Programs (SCAR)
CON	CCAMLR Otolith Network
COTPAS	CCAMLR Observer Training Program Accreditation Scheme
CPD	Critical Period–Distance
CPPS	Permanent Commission on the South Pacific
CPR	Continuous Plankton Recorder
CPUE	Catch-per-unit-effort
CQFE	Center for Quantitative Fisheries Ecology (USA)
CS-EASIZ	Coastal Shelf Sector of the Ecology of the Antarctic Sea-Ice Zone (SCAR)
CSI	Combined Standardised Index
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
CT	Computed Tomography
CTD	Conductivity Temperature Depth Probe
CV	Coefficient of Variation
C-VMS	Centralised Vessel Monitoring System
CVS	Concurrent Version System
CWP	Coordinating Working Party on Fishery Statistics (FAO)

DCD	*Dissostichus* Catch Document
DMSP	Defense Meteorological Satellite Program
DPM	Dynamic Production Model
DPOI	Drake Passage Oscillation Index
DSAG	Data Services Advisory Group
DQA	Data quality assurance
DVM	Diel vertical migration
DWBA	Distorted wave Born approximation model
EAF	Ecosystem Approaches to Fishing
EASIZ	Ecology of the Antarctic Sea-Ice Zone
E-CDS	Electronic Web-based Catch Documentation Scheme for *Dissostichus* spp.
ECOPATH	Software for construction and analysis of mass-balance models and feeding interactions or nutrient flow in ecosystems (see www.ecopath.org)
ECOSIM	Software for construction and analysis of mass-balance models and feeding interactions or nutrient flow in ecosystems (see www.ecopath.org)
EEZ	Exclusive Economic Zone
EG-BAMM	Expert Group on Birds and Marine Mammals (SCAR)
EIV	Ecologically Important Value
ENFA	Environmental Niche Factor Analysis
ENSO	El Niño Southern Oscillation
EOF/PC	Empirical Orthogonal Function/Principal Component
EoI	Expression of Intent (for activities in the IPY)
EPOC	Ecosystem, productivity, ocean, climate modelling framework
EPOS	European *Polarstern* Study
EPROM	Erasable Programmable Read-Only Memory

eSB	Electronic version of CCAMLR's *Statistical Bulletin*
ESS	Effective Sample Size(s)
FAO	Food and Agriculture Organization of the United Nations
FBM	Feedback Management
FEMA	Workshop on Fisheries and Ecosystem Models in the Antarctic
FEMA2	Second Workshop on Fisheries and Ecosystem Models in the Antarctic
FFA	Forum Fisheries Agency
FFO	Foraging–Fishery Overlap
FIBEX	First International BIOMASS Experiment
FIGIS	Fisheries Global Information System (FAO)
FIRMS	Fishery Resources Monitoring System (FAO)
FMP	Fishery Management Plan
FOOSA	Krill–Predator–Fishery Model (previously KPFM2)
FPI	Fishing-to-Predation Index
FRAM	Fine Resolution Antarctic Model
FV	Fishing Vessel
GAM	Generalised Additive Model
GATT	General Agreement on Tariffs and Trade
GBIF	Global Biodiversity Information Facility
GBM	Generalised Boosted Model
GCMD	Global Change Master Directory
GDM	Generalised Dissimilarity Modelling
GEBCO	General Bathymetric Chart of the Oceans
GEOSS	Global Earth Observing System of Systems
GIS	Geographic Information System
GIWA	Global International Waters Assessment (SCAR)

GLM	Generalised Linear Model
GLMM	Generalised Linear Mixed Model
GLOBEC	Global Ocean Ecosystems Dynamics Research
GLOCHANT	Global Change in the Antarctic (SCAR)
GMT	Greenwich Mean Time
GOOS	Global Ocean Observing System (SCOR)
GOSEAC	Group of Specialists on Environmental Affairs and Conservation (SCAR)
GOSSOE	Group of Specialists on Southern Ocean Ecology (SCAR/SCOR)
GPS	Global Positioning System
GSCF	General Science Capacity Fund
GUI	Graphical User Interface
GRT	Gross Registered Tonnage
GTS	Greene et al., (1990) linear TS versus length relationship
GYM	Generalised Yield Model
HAC	A global standard being developed for the storage of hydroacoustic data
HCR	Harvest Control Rule
HIMI	Heard Island and McDonald Islands
IA	Impact Assessment
IAATO	International Association of Antarctica Tour Operators
IASOS	Institute for Antarctic and Southern Ocean Studies (Australia)
IASOS/CRC	IASOS Cooperative Research Centre for the Antarctic and Southern Ocean Environment
IATTC	Inter-American Tropical Tuna Commission
ICAIR	International Centre for Antarctic Information and Research
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICED	Integrating Climate and Ecosystem Dynamics in the Southern Ocean

ICES	International Council for the Exploration of the Sea
ICESCAPE	Integrating Count Effort by Seasonally Correcting Animal Population Estimates
ICES WGFAST	ICES Working Group on Fisheries Acoustics Science and Technology
ICFA	International Coalition of Fisheries Associations
ICG-SF	Intersessional Correspondence Group on Sustainable Financing
ICSEAF	International Commission for the Southeast Atlantic Fisheries
ICSU	International Council for Science
IDCR	International Decade of Cetacean Research
IFF	International Fishers' Forum
IGBP	International Geosphere-Biosphere Programme
IGR	Instantaneous Growth Rate
IHO	International Hydrographic Organisation
IKMT	Isaacs-Kidd Midwater Trawl
IMAF	Incidental Mortality Associated with Fishing
IMALF	Incidental Mortality Arising from Longline Fishing
IMBER	Integrated Marine Biogeochemistry and Ecosystem Research (IGBP)
IMO	International Maritime Organization
IMP	Inter-moult Period
IOC	Intergovernmental Oceanographic Commission
IOCSOC	IOC Regional Committee for the Southern Ocean
IOFC	Indian Ocean Fisheries Commission
IOTC	Indian Ocean Tuna Commission
IPHC	International Pacific Halibut Commission
IPOA	International Plan of Action
IPOA-Seabirds	FAO International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries

IPY	International Polar Year
IRCS	International Radio Call Sign
ISO	International Organization for Standardization
ISR	Integrated Study Region
ITLOS	International Tribunal for the Law of the Sea
IUCN	International Union for the Conservation of Nature and Natural Resources – the World Conservation Union
IUU	Illegal, Unreported and Unregulated
IW	Integrated Weight
IWC	International Whaling Commission
IWC-IDCR	IWC International Decade of Cetacean Research
IWC SC	Scientific Committee of the IWC
IWL	Integrated Weighted Line
IYGPT	International Young Gadoids Pelagic Trawl
JAG	Joint Assessment Group
JARPA	Japanese Whale Research Program under special permit in the Antarctic
JGOFS	Joint Global Ocean Flux Studies (SCOR/IGBP)
KPFM	Krill–Predatory–Fishery Model (used in 2005)
KPFM2	Krill–Predatory–Fishery Model (used in 2006) – renamed FOOSA
KYM	Krill Yield Model
LADCP	Lowered Acoustic Doppler Current Profiler (lowered through the water column)
LAKRIS	Lazarev Sea Krill Study
LBRS	Length-bin Random Sampling
LMM	Linear Mixed Model
LMR	Living Marine Resources Module (GOOS)
LSSS	Large-Scale Server System

LTER	Long-term Ecological Research (USA)
M	Natural Mortality
MARPOL Convention	International Convention for the Prevention of Pollution from Ships
MARS	Multivariate Adaptive Regression Splines
MAXENT	Maximum Entropy modelling
MBAL	Minimum Biologically Acceptable Limits
MCMC	Markov Chain Monte Carlo
MCS	Monitoring Control and Surveillance
MDS	Mitigation Development Strategy
MEA	Multilateral Environmental Agreement
MEOW	Marine Ecoregions of the World
MFTS	Multiple-Frequency Method for in situ TS Measurements
MIA	Marginal Increment Analysis
MIZ	Marginal Ice Zone
MLD	Mixed-layer Depth
MODIS	Moderate Resolution Imaging Spectroradiometer
MoU	Memorandum of Understanding
MP	Management Procedure
MPA	Marine Protected Area
MPD	Maximum of the Posterior Density
MRAG	Marine Resources Assessment Group (UK)
MRM	Minimum Realistic Model
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
MV	Merchant Vessel
MVBS	Mean Volume Backscattering Strength

MVP	Minimum Viable Populations
MVUE	Minimum Variance Unbiased Estimate
NAFO	Northwest Atlantic Fisheries Organization
NASA	National Aeronautical and Space Administration (USA)
NASC	Nautical Area Scattering Coefficient
NCAR	National Center for Atmospheric Research (USA)
NEAFC	North East Atlantic Fisheries Commission
NCP	Non-Contracting Party
NGO	Non-Governmental Organisation
NI	Nearest Integer
NIWA	National Institute of Water and Atmospheric Research (New Zealand)
nMDS	non-Metric Multidimensional Scaling
NMFS	National Marine Fisheries Service (USA)
NMML	National Marine Mammal Laboratory (USA)
NOAA	National Oceanic and Atmospheric Administration (USA)
NPOA	National Plan of Action
NPOA-Seabirds	FAO National Plans of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries
NRT	Net Registered Tonnage
NSF	National Science Foundation (USA)
NSIDC	National Snow and Ice Data Center (USA)
OBIS	Ocean Biogeographic Information System
OCCAM Project	Ocean Circulation Climate Advanced Modelling Project
OCTS	Ocean Colour and Temperature Scanner
OECD	Organisation for Economic Cooperation and Development
OM	Operating Model
PaCSWG	Population and Conservation Status Working Group (ACAP)

PAR	Photosynthetically Active Radiation
PBR	Permitted Biological Removal
PCA	Principal Component Analysis
PCR	Per Capita Recruitment
pdf	Portable Document Format
PF	Polar Front
PFZ	Polar Frontal Zone
PIT	Passive Integrated Transponder
PRP	CCAMLR Performance Review Panel
PS	Paired Streamer Line
PSAT	Pop-up satellite archival tag
PTT	Platform Terminal Transmitter
RES	Relative Environmental Suitability
RFB	Regional Fishery Body
RFMO	Regional Fishery Management Organisation
RMT	Research Midwater Trawl
ROV	Remotely-Operated Vehicle
RPO	Realised Potential Overlap
RTMP	Real-Time Monitoring Program
RV	Research Vessel
RVA	Register of Vulnerable Areas
SACCB	Southern Antarctic Circumpolar Current Boundary
SACCF	Southern Antarctic Circumpolar Current Front
SAER	State of the Antarctic Environment Report
SAF	Sub-Antarctic Front
SBDY	Southern Boundary of the ACC

SBWG	Seabird Bycatch Working Group (ACAP)
SCAF	Standing Committee on Administration and Finance (CCAMLR)
SCAR	Scientific Committee on Antarctic Research
SCAR-ASPECT	Antarctic Sea-Ice Processes, Ecosystems and Climate (SCAR Program)
SCAR-BBS	SCAR Bird Biology Subcommittee
SCAR-CPRAG	Action Group on Continuous Plankton Recorder Research
SCAR-EASIZ	Ecology of the Antarctic Sea-Ice Zone (SCAR Program)
SCAR-EBA	Evolution and Biodiversity in Antarctica (SCAR Program)
SCAR-EGBAMM	Expert Group on Birds And Marine Mammals
SCAR-GEB	SCAR Group of Experts on Birds
SCAR-GOSEAC	SCAR Group of Specialists on Environmental Affairs and Conservation
SCAR-GSS	SCAR Group of Specialists on Seals
SCAR-MarBIN	SCAR Marine Biodiversity Information Network
SCAR/SCOR-GOSSOE	SCAR/SCOR Group of Specialists on Southern Ocean Ecology
SCAR WG-Biology	SCAR Working Group on Biology
SC-CAMLR	Scientific Committee for the Conservation of Antarctic Marine Living Resources
SC CIRC	Scientific Committee Circular (CCAMLR)
SC-CMS	Scientific Committee for CMS
SCIC	Standing Committee on Implementation and Compliance (CCAMLR)
SCOI	Standing Committee on Observation and Inspection (CCAMLR)
SCOR	Scientific Committee on Oceanic Research
SCP	Systematic Conservation planning
SD	Standard Deviation
SDWBA	Stochastic Distorted-wave Born Approximation

SEAFO	South East Atlantic Fisheries Organisation
SeaWiFS	Sea-viewing Wide Field-of-view Sensor
SG-ASAM	Subgroup on Acoustic Survey and Analysis Methods
SGE	South Georgia East
SGSR	South Georgia–Shag Rocks
SGW	South Georgia West (SSMU)
SIBEX	Second International BIOMASS Experiment
SIC	Scientist-in-Charge
SIOFA	Southern Indian Ocean Fisheries Agreement
SIR Algorithm	Sampling/Importance Resampling Algorithm
SISO	Scheme of International Scientific Observation (CCAMLR)
SKAG	SCAR Krill Action Group
SMOM	Spatial Multispecies Operating Model
SNP	Single Nucleotide Polymorphism
SO-CPR	Southern Ocean CPR
SO GLOBEC	Southern Ocean GLOBEC
SOI	Southern Oscillation Index
SO JGOFS	Southern Ocean JGOFS
SOMBASE	Southern Ocean Molluscan Database
SONE	South Orkney North East (SSMU)
SOOS	Southern Ocean Observing System
SOPA	South Orkney Pelagic Area (SSMU)
SOS Workshop	Southern Ocean Sentinel Workshop
SOW	South Orkney West (SSMU)
SOWER	Southern Ocean Whale Ecology Research Cruises
SPA	Specially Protected Area

SPC	Secretariat of the Pacific Community
SPGANT	Ocean Colour Chlorophyll-*a* algorithm for the Southern Ocean
SPM	Spatial Population Model
SPRFMO	South Pacific Regional Fisheries Management Organisation
SRZ	Special research zone
SSB	Spawning Stock Biomass
SSG-LS	The Standing Scientific Group on Life Sciences (SCAR)
SSM/I	Special Sensor Microwave Imager
SSMU	Small-scale Management Unit
SSMU Workshop	Workshop on Small-scale Management Units, such as Predator Units
SSRU	Small-scale Research Unit
SSSI	Site of Special Scientific Interest
SST	Sea-Surface Temperature
STC	Subtropical Convergence
SWIOFC	Southwest Indian Ocean Fisheries Commission
TASO	ad hoc Technical Group for At-Sea Operations (CCAMLR)
TDR	Time Depth Recorder
TEWG	Transitional Environmental Working Group
TIRIS	Texas Instruments Radio Identification System
TISVPA	Triple Instantaneous Separable VPA (previously TSVPA)
ToR	Term of Reference
TrawlCI	Estimation of Abundance from Trawl Surveys
TS	Target Strength
TVG	Time Varied Gain
UBC	University of British Columbia (Canada)
UCDW	Upper Circumpolar Deep Water

UN	United Nations
UNCED	UN Conference on Environment and Development
UNCLOS	UN Convention on the Law of the Sea
UNEP	UN Environment Programme
UNEP-WCMC	UNEP World Conservation Monitoring Centre
UNFSA	the United Nations Fish Stock Agreement is the 1995 United Nations Agreement for the Implementation of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks
UNGA	United Nations General Assembly
UPGMA	Unweighted Pair Group Method with Arithmetic Mean
US AMLR	United States Antarctic Marine Living Resources Program
US LTER	United States Long-term Ecological Research
UV	Ultra-Violet
UW	Unweighted
UWL	Unweighted Longline
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System
VOGON	Value Outside the Generally Observed Norm
VPA	Virtual Population Analysis
WAMI	Workshop on Assessment Methods for Icefish (CCAMLR)
WC	Weddell Circulation
WCO	World Customs Organization
WFC	World Fisheries Congress
WCPFC	Western and Central Pacific Fisheries Commission
WG-CEMP	Working Group for the CCAMLR Ecosystem Monitoring Program (CCAMLR)

WG-EMM	Working Group on Ecosystem Monitoring and Management (CCAMLR)
WG-EMM-STAPP	Subgroup on Status and Trend Assessment of Predator Populations
WG-FSA	Working Group on Fish Stock Assessment (CCAMLR)
WG-FSA-SAM	Subgroup on Assessment Methods
WG-FSA-SFA	Subgroup on Fisheries Acoustics
WG-IMAF	Working Group on Incidental Mortality Associated with Fishing (CCAMLR)
WG-IMALF	ad hoc Working Group on Incidental Mortality Arising from Longline Fishing (CCAMLR)
WG-Krill	Working Group on Krill (CCAMLR)
WG-SAM	Working Group on Statistics, Assessments and Modelling
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WSC	Weddell–Scotia Confluence
WS-Flux	Workshop on Evaluating Krill Flux Factors (CCAMLR)
WS-MAD	Workshop on Methods for the Assessment of *D. eleginoides* (CCAMLR)
WSSD	World Summit on Sustainable Development
WS-VME	Workshop on Vulnerable Marine Ecosystems
WTO	World Trade Organization
WWD	West Wind Drift
WWF	World Wide Fund for Nature
WWW	World Wide Web
XBT	Expendable Bathythermograph
XML	Extensible Mark-up Language
Y2K	Year 2000
YCS	Year-class Strength(s)