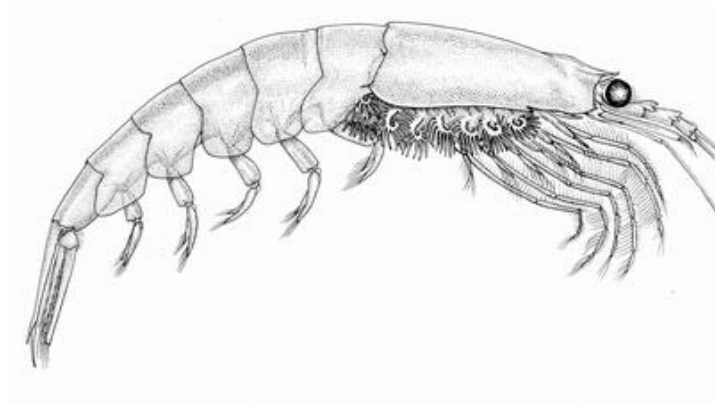


Pescachile - Antarctic krill fishery

MSC Certificate code: MSC-F-30022



Picture from: fao.org



Third Surveillance Report

Conformity Assessment Body (CAB)	Bureau Veritas Certification Holding SAS
Assessment team	Juan Carlos Quiroz & José Ríos
Fishery client	PESCACHILE S.A.
Assessment Type	Third Surveillance
Author name	Quiroz, J.C. & Ríos, J.
Date	07/11/2022

1 Contents

Contenido

1	Contents	2
2	Glossary	2
3	Executive summary	4
4	Report details	7
4.1	Surveillance information	7
4.2	Background	9
4.2.1	Personnel involved in science, management, or industry	9
4.2.2	Certified fleet and client group	10
4.2.3	Fishery management and regulatory framework	10
4.2.4	Details of the Antarctic Endeavour fishing operations during 2019-2020	12
4.2.5	Monitoring and Compliance	19
4.2.6	Traceability issues	20
4.2.7	Scientific based information related to P1	20
4.2.8	Scientific based information related to P2	21
4.3	Version details	25
5	Results	25
5.1	Surveillance results overview	25
5.1.1	Summary of conditions	25
5.1.2	Total Allowable Catch (TAC) and catch data	26
5.1.3	Recommendations	26
5.2	Re-scoring Performance Indicators	28
5.3	Conditions	28
5.3.1	Closed Conditions	28
5.3.2	Progress against conditions	28
5.4	Client Action Plan	30
6	References	31
7	Appendices	32
7.1	Evaluation processes and techniques	32
7.1.1	Site visits	32
7.1.2	Stakeholder participation	32
7.2	Stakeholder input	33
7.3	Revised surveillance program	34
7.4	Harmonised fishery assessments	35

2 Glossary

ACDR (MSC) Announcement Comment Draft Report

ARK	Association of Responsible Krill Harvesting Companies
Blim	Limit biomass reference point
Bmsy	Biomass achieving maximum sustainable yield
BV	Bureau Veritas
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CPUE	Catch per unit effort
CR	MSC Certification Requirements
ETP	Endangered, threatened and protected species
EP	(ARK) Expert Panel
F	Fishing Mortality
Flim	Limit reference point for fishing mortality
F_{MSY}	Fishing mortality achieving maximum sustainable yield
Fpa	Fishing mortality expected to maintain the SSB at the precautionary reference point
HCR	Harvest Control Rule
IFOP	Institute of Fisheries Promotion (Instituto de Fomento Pesquero)
INACH	Chilean Antarctic Institute (Instituto Antártico Chileno)
MCS	Monitoring, Control and Surveillance
MINREL	Ministerio de Relaciones Exteriores de Chile (Chilean Ministry of Foreign Affairs)
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
P1	MSC Principle 1
P2	MSC Principle 2
P3	MSC Principle 3
PCR	MSC Public Certification Report
PI	MSC Performance Indicator
PRI	Point of Recruitment Impairment
RP	(ARK) Review Panel
SA	MSC Surveillance audit
SC	(CCAMLR) Scientific Committee
SERNAPESCA	Servicio Nacional de Pesca Chileno
SI	Scoring Issue (MSC)
SUBPESCA	Chilean Undersecretariat for Fisheries (Subsecretaría de Pesca Chilena)
TAC	Total Allowable Catch
UoC	Unit of Certification
VMS	Vessel Monitoring System
VRZ	(ARK) Voluntary Restricted Zones
WG-ASAM	(CCAMLR) Working Group on Acoustic Survey and Analysis Methods
WG-EMM	(CCAMLR) Working Group on Ecosystem Monitoring and Management
WG-SAM	(CCAMLR) Working Group on Statistics, Assessments and Modelling

3 Executive summary

The fishery got the MSC certificate in September 2018. However, as a result of the MSC's 6-month derogation for the COVID-19 situation, the Anniversary date of the certificate was moved to March. The third surveillance audit was scheduled to September 2022, within the 6-month flexibility allowed in FCP7.28.8.1.

As a result of the current surveillance, the only condition that remains open for this fishery (on PI 1.2.1) was found to be **on target** (see **section 5.3.2**), and no information supporting material differences on any of the other PIs was identified; so, no re-scoring was needed. No new recommendations were set because of the current surveillance audit, and the progress on the existing recommendations can be checked in **section 5.1.3**.

Harmonisation activities were restricted to an exchange of emails, mainly discussing the deadline for the existing condition on PI 1.2.1 (see **section 7.4**).

Table 3.1.1 presents overall scores given to each MSC Principle as published at the PCR and after subsequent surveillance audits, while **Table 3.1.2** presents scores for each Performance Indicator.

Table 3.1.1. Scores obtained by the fishery for each MSC Principle as published at the PCR and subsequent surveillance audits.

Final Principles Scores				
Principle	(PCR)	(1SA)	(2SA)	(3SA)
Principle 1 – Target Species	89.2	=	80.0	=
Principle 2 – Ecosystem	89.0	=	89.7	=
Principle 3 – Management System	94.2	=	=	=

Table 3.1.2. Pls scores of the certified fishery as published at the PCR and subsequent SAs (in orange scores below 80, meaning a condition was raised for that PI).

Principle	Component	Performance Indicator (PI)	PCR	1SA	2SA	3SA
One	Outcome	1.1.1 Stock status	90	=	80	=
		1.1.2 Stock rebuilding	NA	NA	NA	NA
	Management	1.2.1 Harvest strategy	85	=	70	=
		1.2.2 Harvest control rules & tools	85	=	=	=
		1.2.3 Information & monitoring	90	=	80	=
		1.2.4 Assessment of stock status	95	=	85	=
Two	Primary species	2.1.1 Outcome	80	=	=	=
		2.1.2 Management strategy	75	=	90	=
		2.1.3 Information/Monitoring	95	=	=	=
	Secondary species	2.2.1 Outcome	80	=	=	=
		2.2.2 Management strategy	85	=	=	=
		2.2.3 Information/Monitoring	85	=	=	=
	ETP species	2.3.1 Outcome	95	=	90	=
		2.3.2 Management strategy	85	=	=	=
		2.3.3 Information strategy	90	=	=	=
	Habitats	2.4.1 Outcome	100	=	=	=
		2.4.2 Management strategy	100	=	=	=
		2.4.3 Information	85	=	=	=
	Ecosystem	2.5.1 Outcome	100	=	=	=
		2.5.2 Management	85	=	=	=
		2.5.3 Information	95	=	=	=
Three	Governance and policy	3.1.1 Legal &/or customary framework	95	=	=	=
		3.1.2 Consultation, roles & responsibilities	100	=	=	=
		3.1.3 Long term objectives	100	=	=	=
	Fishery specific management system	3.2.1 Fishery specific objectives	90	=	=	=
		3.2.2 Decision making processes	95	=	=	=
		3.2.3 Compliance & enforcement	85	=	=	=
		3.2.4 Monitoring & management performance evaluation	90	=	=	=

The main findings of current surveillance audit are listed below:

- The Commission and the Scientific Committee held virtual meetings in 2021 (CCAMLR-40 and SC-CCAMLR-40, respectively). Besides, unlike the year before, in 2021 the Working Groups also had official virtual meetings.
- Catch of krill (320,014 tons) in the 2020/21 season was 30% lower than in the previous fishing season. Unlike in the previous fishing season, total catches in Subarea 48.1 (142,703 tons) were below that catch limit adopted in CMM 51-07 (155,000 tons).
- Adequate signs of progress have been made by the CCAMLR working groups (WG-EMM, WG-ASAM, WG-SAM and WG-FSA) regarding the main matters: (i) the importance of spatial scale in population and catch limit analysis, (ii) recruitment dynamic to approach the productivity level (using a modelling framework), and (iii) the development of a risk assessment, to overcome the gaps linked with the CM 51-01 and CM 51-07.

- According to the observer reports, the vessel operates in accordance with the recently adopted CM 25-03 on minimization of incidental mortality of seabirds and marine mammals for trawling fisheries.
- The two multi stakeholder panels reviewing the implementation of the ARK Agreement confirmed 100% compliance with the Voluntary Restricted Zones (VRZ) during 2020/2021.
- The certified vessel presented detailed information of the fishing operations occurred during the 2020/21 season, including all observers' reports.
- A Remote Electronic System is in place since December 2019 on board the certified fleet, in accordance with Chilean regulations. Chilean authorities confirmed that no issues were raised at national or international level in relation to compliance of this vessel.

Based on the findings mentioned above, the assessment team concludes that **the MSC Certificate for this fishery shall remain active.**

The assessment team concludes that **the MSC Certificate for this fishery shall remain active**, subject to the agreed annual surveillance schedule and progress on the current condition.

4 Report details

4.1 Surveillance information

Table 4.1.1 – Surveillance announcement

1	Fishery name	
	Pescachile, S.A. - Antarctic Krill Fishery	
2	Unit(s) of Assessment (UoA)	
	Target stock: Antarctic krill (<i>Euphausia superba</i>) in FAO Area 48 Fishing Area: FAO 48.1, 48.2, 48.3 and 48.4 Fishing method: Midwater trawl targeting Antarctic krill Fishing operators: 'Antarctic Endeavour' f/v Other eligible fishers: No other eligible fishers	
3	Date certified	Date of expiry
	06 September 2018	05 March 2024
4	Surveillance level and type	
	<p>The surveillance level determined in the PCR was 5 (3 on-site surveillance audits and 1 off-site surveillance audit). The first surveillance audit was an off-site audit. The second surveillance audit, due to the Covid 19 pandemic, had to be also carried out off-site. This year, as there is only one condition opened for Principle 1 for which the information will be obtained either from reports published online or through interviews to scientists that are not in Chile, the surveillance audit will also carried out off-site.</p>	
5	Surveillance number	
	1st Surveillance	
	2nd Surveillance	
	3rd Surveillance	X
	4th Surveillance	
	Other (Expedited, etc.)	
6	Proposed team leader	
	<p>José Rios holds a degree in Sea Sciences from the University of Vigo and an MSc in Fisheries and Aquaculture from the University of Wales-Bangor. He has more than 15 years of experience working in fisheries from different angles and places around the world. In 1999 he worked at the ICM-CSIC on trophic ecology of demersal fish species and participated in different research cruises on board the r/v Garcia del Cid. In 2001/02 he was hired by the University of Azores as observer and fisheries inspector assessing an experimental fishing license for Orange roughy. Between 2003 and 2010 he was responsible for designing and monitoring fisheries management plans for several marine resources (clams, cockles and barnacles) for</p>	

	<p>the Regional Fisheries Authority of Galicia (Spain). In 2008-09 he developed and implemented a scientific monitoring scheme for an experimental octopus fishery in the waters of Namibia (IIM-CSIC). Between 2008 and 2012, as part of different projects funded by the Spanish International Cooperation Agency (AECID), he supported local fisheries and aquaculture management bodies to strengthen organizational and managing capacities of the fishing and rural aquaculture sector in Namibia, Cape Verde, Colombia and Mozambique. Since 2013, as part of the fisheries team of WWF Spain, he promoted different initiatives to improve fisheries management in coastal Spanish fisheries. As the WWF representative in fisheries co-management committees, he took part in the daily management of the following coastal fisheries in the Spanish Mediterranean: Catalan sandeel, Balearic boat seines, and Palamós red shrimp. Since April 2016 he is a full-time employee at Bureau Veritas Fisheries Department and he has participated in several MSC fisheries assessments and surveillance audits.</p> <p>His 7 years in charge of designing and monitoring fisheries management plans for the exploitation different marine resources in Galicia, together with his experience on trophic ecology of demersal fish species in the Mediterranean (ICM-CSIC), his work with the University of Azores assessing an experimental fishing license for Orange roughy in the Azores islands, and his experience designing and monitoring an experimental fishing license for octopus in Namibia (IIM-CSIC) ensure he meets qualification and competency criteria established in PC3 for (i) Fishing impacts on aquatic ecosystems. Also, his 3 years of experience as a practicing fishery manager as a WWF representative in 3 Mediterranean fisheries, together with his 7 years of experience participating in the implementation of fisheries management plans in Galicia and his experiences assessing experimental fishing licenses in the Azores and Namibia ensure he meets qualification and competency criteria established in PC3 for (ii) Fishery management and operations.</p> <p>For this surveillance he will be acting as Team Leader and will be in charge of Principle 2 and Principle 3. He has not a conflict of interest for this fishery.</p>
7	Proposed team members
	<p>Juan Carlos Quiroz is a former Fishery Scientist with 22+ years of professional experience in fisheries modelling, fishery data mining and providing scientific advice for management purposes. As part of a Chilean fisheries research institute (Instituto de Fomento Pesquero, IFOP) staff, he has worked with various partner institutions and bodies, from universities to private companies. In his position as Head of the Stock Assessment Department at IFOP, he developed and implemented several changes to the fishery assessment procedure for 24 commercially exploited stocks in Chile, which allowed improvements to be made in the scientific advice provided to decision-making bodies.</p> <p>He has an MSc in Fisheries from the University of Concepcion, Chile. Also, he got a PhD in Quantitative Antarctic Science (QAS) at the University of Tasmania. During his MSc research, he developed a modelling framework to assess the skate populations in Chile, ranging from life history research to encoding demographic parameters of individual-based models. His PhD research was focused on the assessment and management of the Chilean Patagonian toothfish fishery, including the description of IUU catches, the development of alternative harvest control rules and the application of management strategy evaluation (MSE) to compare the performance of candidate harvest strategies.</p> <p>He has been actively involved in conducting marine fish stock assessments of small pelagic species exploited in Chile and, he is the Chilean lead stock assessment analyst for Jack mackerel at the SPRFMO. During the last decade, he has been involved in several RFMO activities, especially at CCAMRL and IATTC, providing consulting and management analytics technics to support iconic species.</p> <p>Therefore, his appropriate skills and experience comply with the PC3 for (i) Fish stock assessment.</p> <p>For this surveillance he will oversee Principle 1. He has not a conflict of interest for this fishery.</p>
8	Audit/review time and location
	The remote audits were undertaken during the week of the 5th of September 2022 . Virtual meetings and conference calls were also arranged with stakeholders.
9	Assessment and review activities
	<p>The team will assess the following information:</p> <ul style="list-style-type: none"> Regulatory framework and fishery management system (objectives, mechanisms for decision-making, monitoring, control, inspection, evaluation), including compliance of the certified fleet,

	<ul style="list-style-type: none"> • Changes affecting the 'management loop' (outcome, management, information) assessed in the initial certification process for the certified species and the other species impacted by the fishery, as well as for marine habitats and ecosystems impacted by the fishery, • Changes within the fishery which may impact traceability, focusing on the segregation MSC product from non-MSC product, • Fishery performance in relation to the condition of certification and recommendations, verify whether progress is "on target" and re-score if applies, <p>and perform the following activities:</p> <ul style="list-style-type: none"> • Conference calls with representatives of the client group, • Actively seek the views of other relevant stakeholders.
10	Stakeholder opportunities
	<p>Bureau Veritas encourages that stakeholders interested in scheduling a meeting provide the following details:</p> <ol style="list-style-type: none"> a) Your name and contact details, b) Your relationship with the fishery, c) Issues you would like to discuss, and d) Where and when are you available for a meeting (during week of 5th of September 2022) <p>In order to make the necessary adjustments on the scheduled agenda of the assessment team, this information should be sent to the contact details provided below before the 4th of September 2022 at 5 PM UTC. Written information can be provided to the assessment team as an alternative, or in addition, to a meeting. If written information will be provided, please use the msc-template-for-stakeholder-input-into-surveillance-audits-v1-0 (click here to download it).</p> <p>Besides, Bureau Veritas encourages stakeholders to provide any information they might consider relevant in relation to the status of the target fish stock, ecosystem interactions, fishery management practices and/or progress on existing conditions/recommendations. Check at the MSC website the guide for stakeholder's engagement in fishery assessments:</p> <ul style="list-style-type: none"> - Stakeholder's Guide and Template for stakeholder's inputs available here: https://www.msc.org/what-you-can-do/engage-with-a-fishery-assessment <p>Please send your comments to contact details provided right below.</p> <p>Submitted by Diego Solé Contact email: diego-martin.sole@bureauveritas.com</p> <p>Date: 5th August 2022</p>

4.2 Background

4.2.1 Personnel involved in science, management, or industry

During the interview held with the client it was confirmed that Deris, S.A. no longer exists, and that PESACHILE S.A. has now taken its place. Deris, S.A. was replaced by PESACHILE, S.A. in the fishery-specific website at the MSC site. However, Pescachile is still an active member of the Association of responsible Krill harvesting companies (ARK).

Besides that, the only change notified during the interviews conducted was that Francisco Berguño has been recently appointed as the new Director of Antarctic Issues at the MINREL. The Subpesca representatives interviewed acknowledged that he is a person with expertise and specific knowledge on the Antarctic issues.

The team did not identify any other major change since the previous surveillance audit in relation to institutions and/or bodies involved in science or industry.

All the stakeholders interviewed confirmed that during 2021 key activities for managing Chilean fisheries operating within the CCAMLR area were implemented with normality, although all CCAMLR meetings (Commission, SC, WG) were still held remotely. Subpesca chaired two annual meetings of the Sección Nacional (a body including all national Institutions involved with CCAMLR issues), a Chilean Delegation attended to the Annual Meeting of the Committee and INACH participated in the WG-EMM meetings (in fact, Cesar Cardenas is still the chair of this WG). On-site meetings happening again in 2022.

According to the Subpesca representatives interviewed, their objective now is to strengthen Chilean participation in CCAMLR when it comes to fisheries issues. To achieve this, they want to participate in the WGs (to date, only INACH participates in the WG-EMM), and they want IFOP to get involved in scientific advice on Antarctic fisheries.

The INACH shared that a new training course for observers is scheduled for next year.

4.2.2 Certified fleet and client group

No changes were identified in the certified fleet or the client group. The f/v 'Antarctic Endeavour' is the only Chilean vessel targeting Antarctic krill and the only vessel included in the certificate. This vessel has an active license to fish Antarctic krill in the Subareas 48.1, 48.2 and 48.3 (see **Table 4.2.2.1**).

Table 4.2.2.1. List of authorised Chilean vessels to target Antarctic krill inside the Convention area during the last two seasons (2020-21, 2021-22). Source: CCAMLR website <https://www.ccamlr.org/en/compliance/list-vessel-authorisations>.

Vessel	Flag	Authorisation periods	Area(s)	Target species
Antarctic Endeavour	Chile	01 Dec 2020 to 30 Nov 2021 01 Dec 2021 to 30 Nov 2022	Subarea 48.1 Subarea 48.2 Subarea 48.3	<i>Euphausia superba</i>

4.2.3 Fishery management and regulatory framework

4.2.3.1 CCAMLR Regulations

Currently, there are 8 CCAMLR Conservation Management Measures in place to fisheries for Krill (in addition to CMs that apply to all Species¹), detailing various provisions such as the application of technical measures or output and input controls, requirements for data collection and reporting, as well as regulations for monitoring, control and surveillance and enforcement:

- CM 51-01 (2010): Precautionary catch limitations on *Euphausia superba* in Statistical Subareas 48.1, 48.2, 48.3 and 48.4,
- CM 51-02 (2008): Precautionary catch limitation on *Euphausia superba* in Statistical Division 58.4.1,
- CM 51-03 (2008): Precautionary catch limitation on *Euphausia superba* in Statistical Division 58.4.2,
- CM 51-04 (2021): General measure for exploratory fisheries for *Euphausia superba* in the Convention Area in the 2021/22 season,
- CM 51-06 (2019): General measure for scientific observation in fisheries for *Euphausia superba*,
- CM 51-07 (2021): Interim distribution of the trigger level in the fishery for *Euphausia superba* in Statistical Subareas 48.1, 48.2, 48.3 and 48.4
- CM 21-03 (2019): Notifications of intent to participate in a fishery for *Euphausia superba*, and
- CM 21-06 (2019): Data Reporting System for *Euphausia superba* fisheries

During the last CCAMLR annual meeting (CCAMLR 40, 18-29 October 2021), the Commission remarked on the work conducted by the Scientific Committee (SC-CCAMLR) and the working groups (WG-EMM, WG-ASAM, WG-SAM and WG-FSA) on the revision of the krill management approach, resulting in an updated krill management approach work plan (SC-CAMLR-40). During the year 2021, the working groups outlined the development of the initial steps for the

¹ Complete schedule of CMs in force in 2021/22 can be downloaded as a pdf file from the following link:
<https://www.ccamlr.org/en/document/conservation-and-management/schedule-conservation-measures-force-2021/22>

science-based management strategy of krill in Area 48 (see SC-CAMLR-41/19), focused on specific outcomes for the Subarea 48.1 (SC-CAMLR-40/BG/01). This new management approach must consider three topics: (i) the importance of spatial scale in population and catch limit analysis, (ii) the recruitment dynamic to approach the productivity level (using a modelling framework), and (iii) the development of a risk assessment, matters that are covered by the CM 51-01 and CM 51-07.

These topics were also examined in depth during the WG-EMM in 2022 (virtual meeting, 4 to 11 July) to create forums and works for review measures such as catch limits on a more regular base and small spatial scale, in which CCAMLR Members are playing a significant role. Though some CCAMLR Members considered that a revision of CM 51-01 is required to implement the new krill management procedure in Subarea 48.1 fully (SC-CAMLR-40, paragraphs 3.27 and 3.28), the advice of the Scientific Committee to rollover CM 51-07 for one year during 2022 was considered, providing time to consolidate the revision of the krill management approach in Subarea 48.1.

This interim Conservation Measure (CM 51-07) of Krill in Area 48 was adopted by CCAMLR Commission based on advice from SC-CCAMLR (2021). The basis for reviewing the interim distribution of the Krill trigger level in Statistical Subareas 48.1, 48.2, 48.3 and 48.4 (CM 51-01 and CM 51-07) must be based on the development of management-based science over the last three years and, following reviews and comments on the approach and information contributing to it during 2022 by WG-ASAM, WG-SAM and WG-EMM.

4.2.3.2 ARK Voluntary Restricted Zones

As detailed in the previous surveillance report, in 2018 ARK members agreed on implementing voluntary restriction of fishing in buffer zones around key penguin colonies in the Antarctic Peninsula and the South Shetland Islands during their breeding season. Besides, in December 2020 the first year-round VRZ closure was adopted (Hope Bay year-round VRZ, in effect during 2020/21). No changes in the VRZs were communicated during this surveillance audit. Current VRZ are as follows (see **Figure 4.2.3.2.1** for the map): (i) Antarctic Peninsula is closed to krill fishing (40 km buffer) between 1 October and 1 February; (ii) a 40 km year-round closure to krill fishing around Hope Bay, Sheppard Nunatak and Sheppard Point, at the tip of the Antarctic Peninsula; (iii) Gerlache Strait is closed to krill fishing (30 km buffer) between 15 October and 15 February; (iv) South Shetland Islands is closed to krill fishing (40 km buffer) between 1 November and 1 March.

The implementation of the ARK-VRZ is done by two different panels: an Expert Panel (EP) comprised by international experts, and a Review Panel (RP) comprised by representatives of the fishing companies and also environmental NGOs such as Oceanites, PEW, Greenpeace and WWF. 2021, 2020 and 2019 reports from both panels are available at the ARK website: <https://www.ark-krill.org/repository-1>. The 2021 reports from both the RP and the EP acknowledged ARK achieving 100% compliance with the VRZs for the third consecutive fishing season (2018/19, 2019/20, 2020/21). However, the RP also acknowledges a recurring failure to provide all required data to the EP so that this panel can assess the effectiveness of this measure. The EP notes that, as in previous years, the same ARK member companies restricted their reporting, thus degrading the accuracy and consistency of the EP analysis. Data held by ARK represents ~23-75% of catches in Subarea 48.1 (67% in 2021). The EP is concerned about the impact of this inconsistency in reporting for the quality of the upcoming 5-year evaluation scheduled for 2023.

Based on the interactions between the RP and the EP during 2021, the EP is satisfied that both panels are interested in an open and transparent process that might enhance the impact of the ARK Commitment in the long run. The 2021 EP report includes several recommendations.

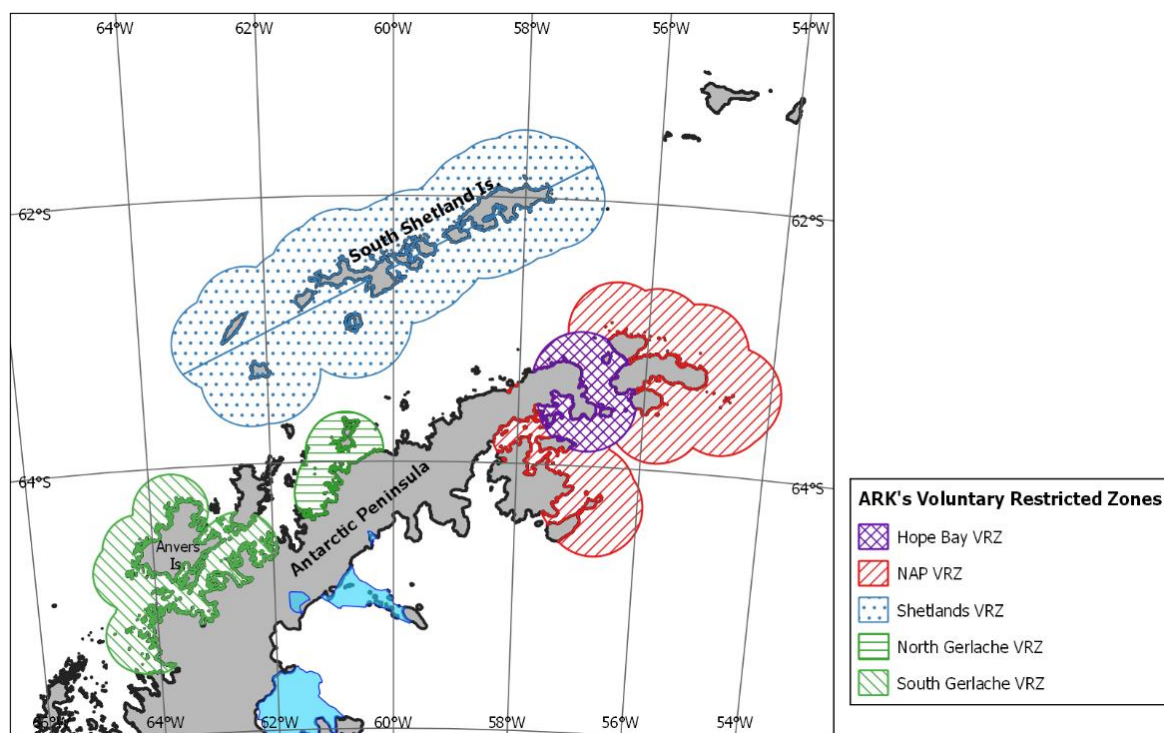


Figure 4.2.3.2.1. Voluntary restricted zones (VRZ) adopted by ARK. Source: ARK (2021).

4.2.4 Details of the Antarctic Endeavour fishing operations during 2019-2020

Based on data provided by the client, WG-EMM-2022/09 shows for the main features of the fishing operations carried out by the Antarctic Endeavour between December 2020 and November 2021. **Table 4.2.4.1** shows details of the 4 fishing trips performed by the certified vessel, including total catches, number and average duration of hauls and CPUE in each CCAMLR subdivision. Furthermore, monthly distribution of hauls in subarea 48.1 are presented in **Figure 4.2.4.1** and **Figure 4.2.4.2**, while hauls performed in Subarea 48.2 are presented in **Figure 4.2.4.3**, **Figure 4.2.4.4**, and **Figure 4.2.4.5**. Compliance with VRZ adopted in the ARK agreement (for all vessels owned by ARK members) was assessed by the multi-stakeholder review panel, as stated in the previous section. This report will be submitted to the CCAMLR Secretariat. All the information presented below was extracted from this report.

The Antarctic Endeavour's operations began on November 25, 2020, and ended on November 12, 2021, with departures and landfalls in the city of Punta Arenas (Chile) as the base port. During that period, four trips were made, and 886 fishing hauls were carried out, obtaining a total Antarctic krill catch of 22,382.3 tons. This amount represents 6.06% of the total obtained in the period analyzed by the international fleet that extracted the *Euphausia superba* in Antarctic waters.

Regarding operations in different fishing Subareas, in December, January, March, and June, fishing operations were carried out indistinctly in Subarea 48.1 and 48.2 meanwhile in April and May only in Subarea 48.1. In February and from July to November, fishing was carried out exclusively in Subarea 48.2. In Subarea 48.1, in December and January, the work was carried out north of the South Shetland Islands, while from April to June, the operation was concentrated only in the Bransfield Strait. In Subarea 48.2, the vessel operation began around 60 nm north of South Orkney Island and, subsequently, hauls were made north of these islands and between June and November, extraction operations were concentrated mainly in the north-northwest of this island group.

Table 4.2.4.1. Details of the fishing operations performed by the Antarctic Endeavour during the 2020-2021 fishing season. WG-EMM-2022/09.

Trip	Date	Subarea	Total catch (t)	Fishing days	Hauls (n)	Total duration of hauls (h)	Average duration of hauls (h)	CPUE (t h ⁻¹)	CPUE (t haul ⁻¹)
1	01-29 Dec	48.1	261.54	6	19	67.83	3.57	3.85	13.77
		48.2	195.75	10	28	117.55	4.20	1.67	6.99
		Total	457.29	16	47	185.38	3.94	2.47	9.73
	01-31 Jan	48.1	675.03	13	44	156.35	3.55	4.32	15.34
		48.2	987.95	12	48	204.45	4.26	4.83	20.58
		Total	1,662.98	25	92	360.80	3.92	4.61	18.08
	01-28 Feb	48.1	0.00	0	0	0.00	0.00	0.00	0.00
		48.2	3,159.04	27	122	460.27	3.77	6.86	25.89
		Total	3,159.04	27	122	460.27	3.77	6.86	25.89
	01-18 Mar	48.1	553.29	5	21	92.95	4.43	5.95	26.35
		48.2	843.47	12	46	205.75	4.47	4.10	18.34
		Total	1,396.76	17	67	298.70	4.46	4.68	20.85
	01-30 Abr	48.1	2,619.07	30	123	555.10	4.51	4.72	21.29
		48.2	0.00	0	0	0.00	0.00	0.00	0.00
		Total	2,619.07	30	123	555.10	4.51	4.72	21.29
	01-31 May	48.1	2,770.54	30	122	493.15	4.04	5.62	22.71
		48.2	0.00	0	0	0.00	0.00	0.00	0.00
		Total	2,770.54	30	122	493.15	4.04	5.62	22.71
	01-04 Jun	48.1	543.68	4	22	62.43	2.84	8.71	24.71
		48.2	308.29	9	26	154.57	5.95	1.99	11.86
		Total	851.96	13	48	217.00	4.52	3.93	17.75
3	01-31 Jul	48.1	0.00	0	0	0.00	0.00	0.00	0.00
		48.2	1,913.60	20	62	310.30	5.00	6.17	30.86
		Total	1,913.60	0	62	310.30	5.00	6.17	30.86
	01-04 Aug	48.1	0.00	0	0	0.00	0.00	0.00	0.00
		48.2	442.20	4	10	17.32	1.73	25.53	44.22
		Total	442.20	4	10	17.32	1.73	25.53	44.22
4	14-30 Sep	48.1	0.00	0	0	0.00	0.00	0.00	0.00
		48.2	3,505.87	17	84	239.93	2.86	14.61	41.74
		Total	3,505.87	17	84	239.93	2.86	14.61	41.74
	01-31 Oct	48.1	0.00	0	0	0.00	0.00	0.00	0.00
		48.2	2,690.25	23	88	374.73	4.26	7.18	30.57
		Total	2,690.25	23	88	374.73	4.26	7.18	30.57
	01-05 Nov	48.1	0.00	0	0	0.00	0.00	0.00	0.00
		48.2	896.19	5	21	73.42	3.50	12.21	42.68
		Total	896.19	5	21	73.42	3.50	12.21	42.68
	Total	48.1	7,423.15	88	351	1,427.81	4.07	5.20	21.15
		48.2	14,942.55	139	535	2,158.29	4.03	6.92	27.93
		Total	22,365.70	207	886	3,586.1	4.05	6.24	25.24

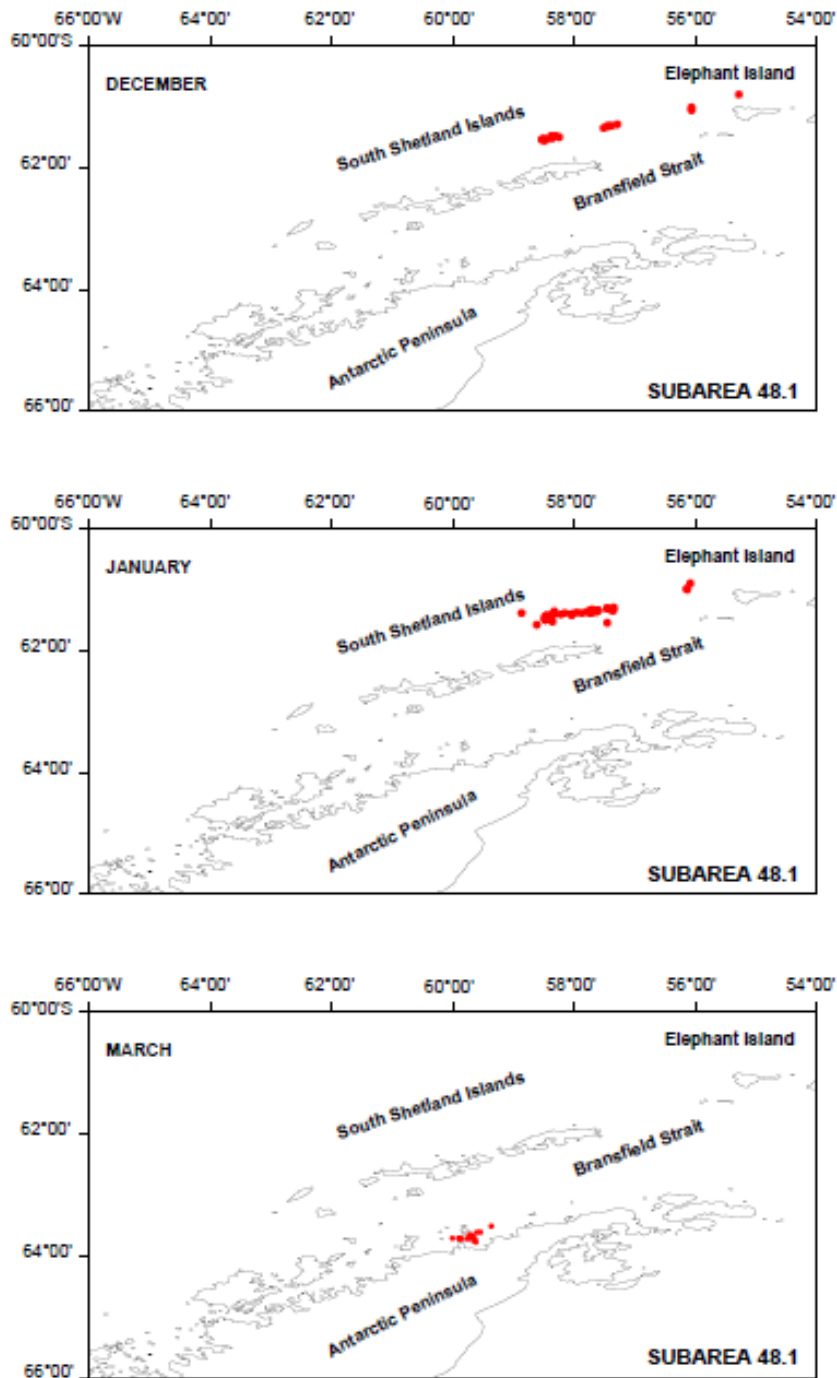


Figure 4.2.4.1 Monthly distribution of Antarctic krill fishing hauls carried out by the FV Antarctic Endeavour in Subarea 48.1, between December 2020 and March 2021. WG-EMM-2022/09.

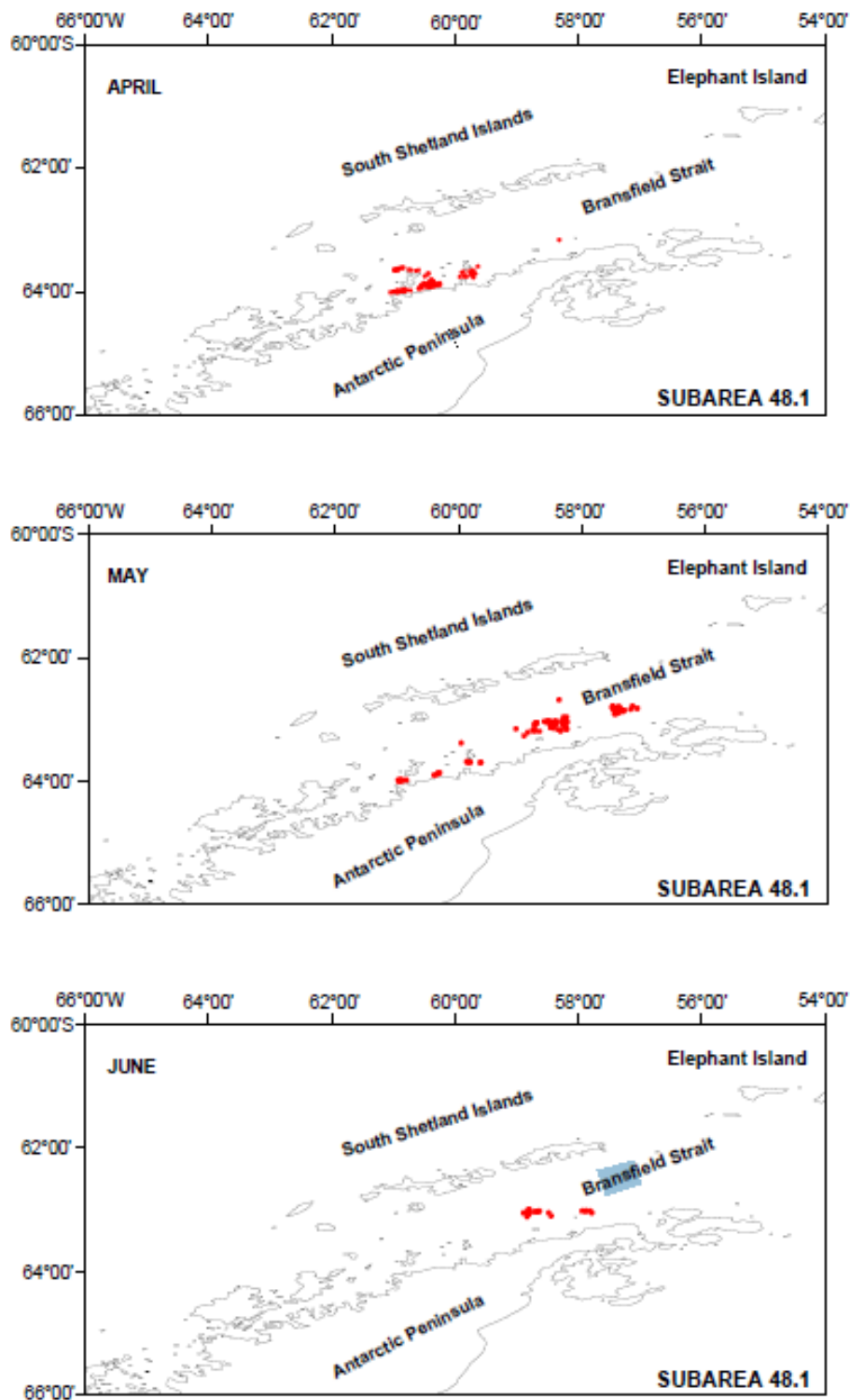


Figure 4.2.4.2 Monthly distribution of Antarctic krill fishing hauls carried out by the FV Antarctic Endeavour in Subarea 48.1, between March and June 2021. WG-EMM-2022/09.

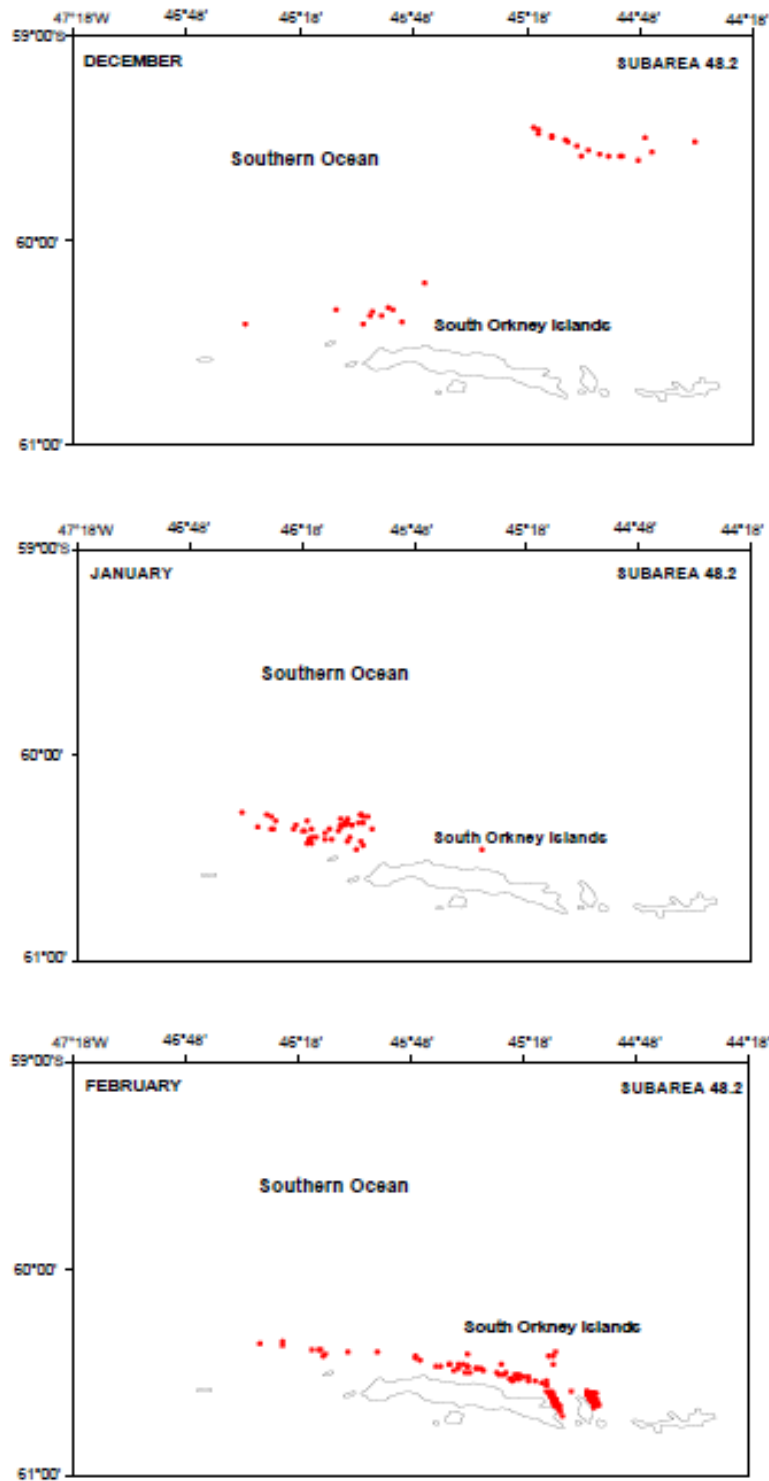


Figure 4.2.4.3 Monthly distribution of Antarctic krill fishing hauls carried out by the FV Antarctic Endeavour in Subarea 48.2, between December 2020 and February 2021. WG-EMM-2022/09.

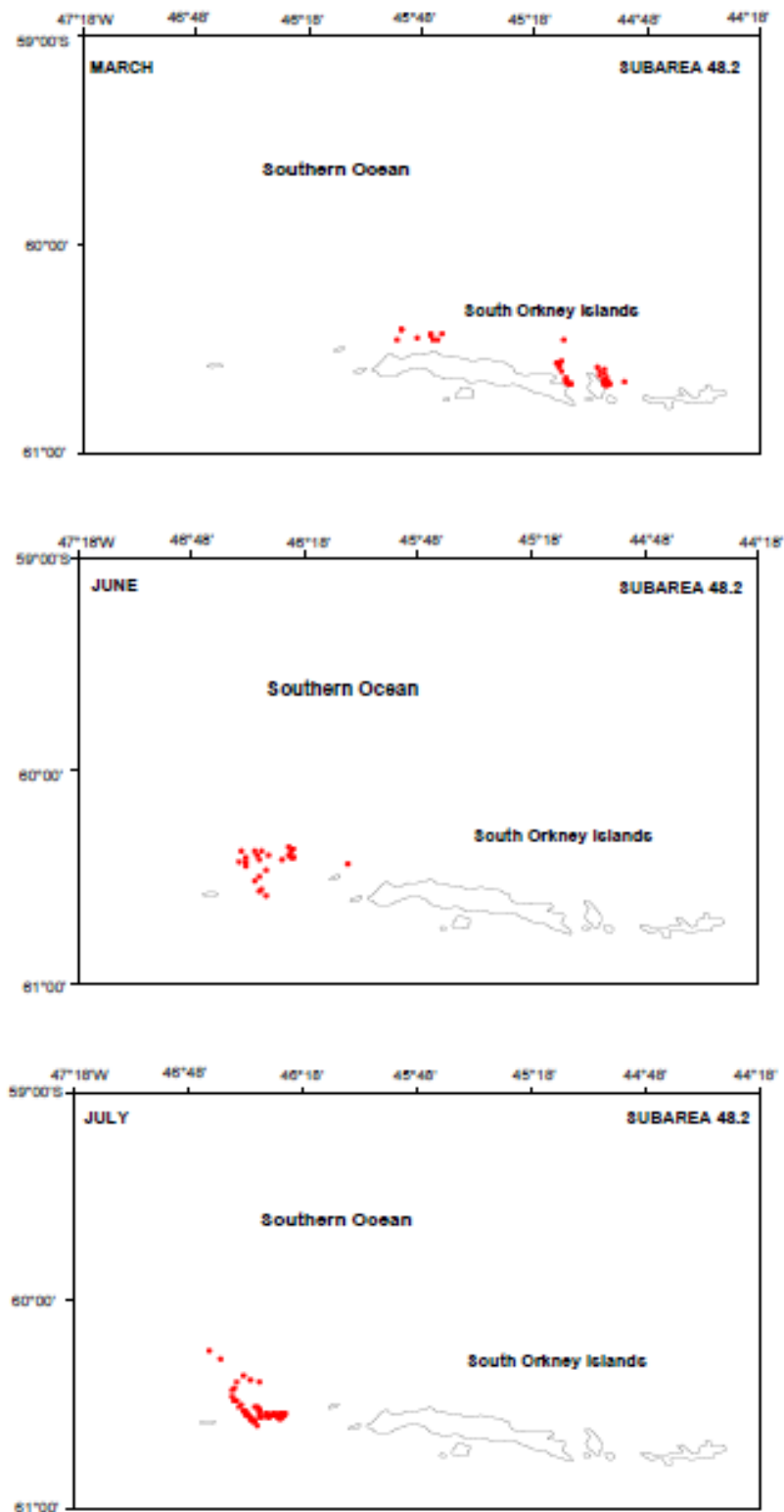


Figure 4.2.4.4 Monthly distribution of Antarctic krill fishing hauls carried out by the FV Antarctic Endeavour in Subarea 48.2, between March and July 2021. WG-EMM-2022/09.

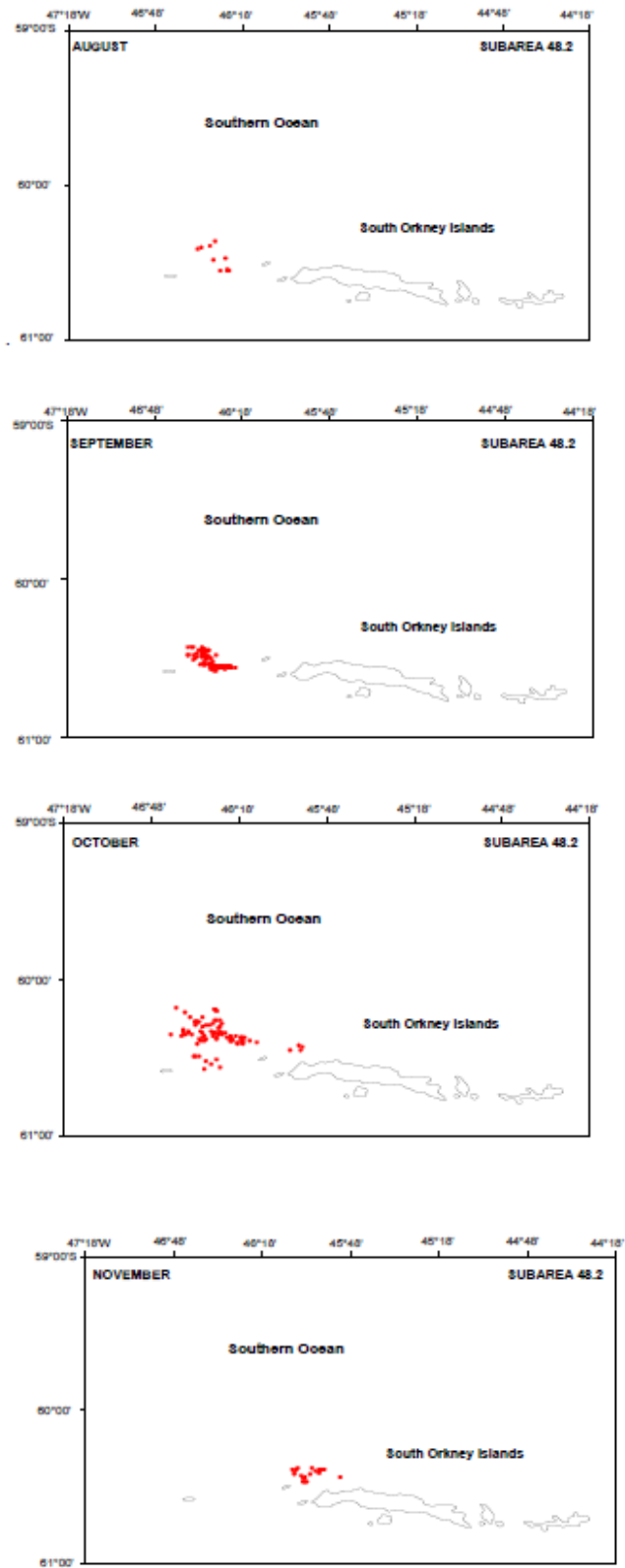


Figure 4.2.4.5 Monthly distribution of Antarctic krill fishing hauls carried out by the FV Antarctic Endeavour in Subarea 48.2, between August and November 2021. WG-EMM-2022/09.

During 2020-2021, the *Antarctic Endeavour* carried out fishing operations for 207 days. January, February, April, May, and October were the most days in operation (>23 days per month). Excluding November, in which this vessel operated only the first five days of the month, a general average of 18.8 fishing days per month was obtained.

Trawling for krill was conducted in a depth range between 0-260 m. In Subarea 48.1 hauls were carried out with a mean depth of 68.99 ± 47.38 m and 85.18 ± 39.85 m in Subarea 48.2.

Overall, 351 hauls (39.6%) were carried out in Subarea 48.1 and 535 hauls (60.4%) in Subarea 48.2 (**Figure 4.2.4.6**). Regarding catches, Subarea 48.1 provided a total catch of 7,423.15 tons (33.2%), and Subarea 48.2 provided 14,942.55 tons (66.8%).

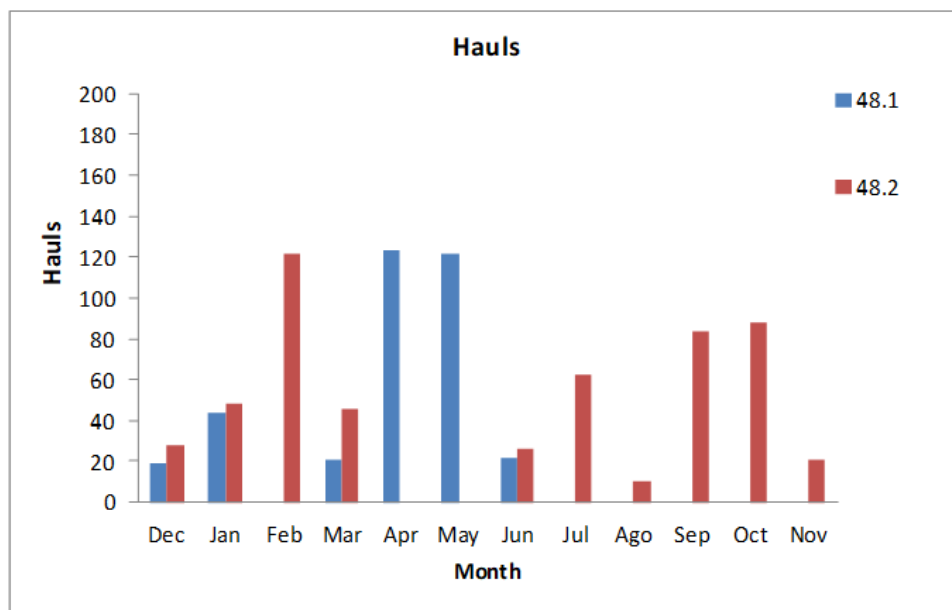


Figure 4.2.4.6 The number of monthly Antarctic krill fishing hauls carried out by the Antarctic Endeavour between December 2020 and November 2021. WG-EMM-2022/09.

The CPUE per trawling hour shows relatively similar values when working between December and July indistinctly in Subareas 48.1 and 48.2, achieving average values between 2.47 and 6.86-ton h⁻¹ in that period. When operating between August and November only in Subarea 48.2, yields increased, reaching a maximum of 25.53 tons h⁻¹ in August. When considering the CPUE per haul, a similar result is observed, with values from 9.73 to 25.89 tons haul⁻¹ between December and June (Subareas 48.1 and 48.2), while from July to November, operating only in Subarea 48.2, average yields increased, reaching values above 30.57 tons haul⁻¹, with a maximum of 44.22 tons haul⁻¹ in August.

4.2.5 Monitoring and Compliance

4.2.5.1 Observer program in place

INACH is the institution in charge of coordinating the national observer program for Chilean vessels operating in the CCAMLR area. All stakeholders interviewed confirmed that ship owners operating in the Convention area can get access to qualified observed in a timely manner.

Both INACH and the client confirmed a 100% observer coverage on board the 'Antarctic Endeavour' during the 2020-2021 fishing season. The client shared four reports completed by the observers on board, covering all fishing trips performed by the Antarctic Endeavour between December 2020 and November 2022.

These reports provide details of the fishing trips and fishing operations (lost fishing gear, catch details, conversion factor...), biological sampling (krill sampling, bycatch sampling, biological samples retained), interactions with birds and mammals (and mitigation devices and practices in place), offal management and also waste disposal procedures.

Reports produced by the Chilean observers on board the Antarctic Endeavour were done in accordance with CCAMLR guidelines detailed in the Scientific Observer Manual Krill Fisheries Version 2020, released in September 2019 (endorsed by WG-EM 2019). This manual is produced in the official languages of the Commission (Spanish included) and can be downloaded from the CCAMLR website (www.ccamlr.org/node/73033).

This manual establishes that the observer shall take, once the net is on the deck, a 25kg sample to identify all bycatch species. This procedure was observed by the observer on board the Antarctic Endeavour.

4.2.5.2 Monitoring, Compliance and Surveillance system

Before the annual meeting of the Commission, Subpesca receives from the CCAMLR Secretariat an annual notification of infringements performed by Chilean vessels operating in the Convention area. The Subpesca representatives interviewed during the remote visit confirmed that no notifications of infringements were received in relation to the operations of the certified vessel during the 2020/2021 fishing season.

Sernapesca confirmed that the certified vessel fulfilled with its reporting obligations (logbook, VMS and on-board cameras for electronic remote monitoring) and no infringements were raised during the 2020-2021 fishing season. Furthermore, since Chile signed an agreement with [Global Fishing Watch](https://globalfishingwatch.org/), all the navigation performed by the Antarctic Endeavour (and any other Chilean vessel) in the last 6 months can be publicly consulted on an interactive map by clicking on the following link: <https://globalfishingwatch.org/map/>

Both, the client and Sernapesca confirmed that a total of 4 landings occurred in 2021 (March 24th, June 11th, August 13th & November 12th). All landings were inspected by Sernapesca, as required by the applicable Chilean regulations. No transshipments occurred in 2021. The client confirmed that they are not planning to do any transshipments during the forthcoming fishing seasons since it increases costs.

4.2.6 Traceability issues

As described in the PCR, the dried krill is labelled and sealed in aluminium bags of 20kg. In turn, these bags are placed in labelled and sealed containers before landing, no processing or repackaging occurs. The MSC-Fishery certificate also covers post-landing activities (transport and storage of the containers) until the product is stored in Punta Arenas, since no change of ownership occurs. No changes were identified during this surveillance audit.

4.2.7 Scientific based information related to P1

During the last meeting of the CCAMLR Commission (CCAMLR 40, 18-29 October 2021), the multiannual working plan was updated to allow the revision of CM 51-07 during 2022 and further refinement within one or two years. This new management approach must consider three topics: (i) the importance of spatial scale in population and catch limit analysis, (ii) the recruitment dynamic to approach the productivity level (using a modelling framework), and (iii) the development of a risk assessment.

Several signs of progress have been made during the years 2021 and 2022, which are crucial information supporting the Condition (PI 1.2.1) set during the 2nd Surveillance (25/05/2021), which considers specifics appeal to the CM 51-07.

4.2.7.1 Spatial scale in population and catch limit analysis

Increasing the spatial resolution on the Krill assessment requires a standardisation of procedures for survey design, data analysis and quality control of acoustically krill biomass estimates, identifying the resilience and disadvantages of the two different methods agreed by WG-ASAM to identify krill in acoustic data (dB difference and swarms' technique, WG-ASAM-2022, paragraph 2.4). Recently, the CCAMLR Secretariat developed a method to standardise the computation of the area of CCAMLR management strata for krill, which were used recently for krill biomass estimations in Subarea 48.1.

Several particularities arise from spatial Krill dynamics that profoundly affect topics, such as catch limits and fishing seasonal duration. During the WG-SAM (2022) and WG-FSA (2021), an analysis demonstrated the strength of using based on daily-based catch reporting compared to the current practice of five-day reporting on mitigating the risk of

exceeding catch limits in the krill fishery, mapping risk profiles of exceeding catch limits across a range of fleet sizes and composition scenarios (WG-FSA-2022/06, WG-FSA-2021/08).

4.2.7.2 Recruitment dynamic to approach the productivity level

The latest updates on developing the krill stock assessment model (GRYM, R implementation of the Generalized Yield Model) make this model suitable for krill estimates purposes (WG-SAM-2022/28 Rev. 2). However, further discussions are required regarding several parameters, such as proportional recruitment parameters, length-weight relationship, and length-at-maturity relationship. Although additional research on these parameters could improve the knowledge of the population and biology of Krill, the WG-EMM argue that the current methods and parameters are reliable enough to be used and represent the best available science.

During the WG-SAM 2022, a new method for calculating precautionary yield in krill stock assessment projections (WG-SAM-2022/28 Rev. 2) was proposed, which could require additional complements such as management strategy evaluations (MSE) and effects of any changes in decision rules on the krill fishery as future work priority (WG-SAM-2022, paragraph 3.21). The MSE, specifically for the Krill fisheries, must consider climate change impacts when undertaking management strategy evaluations and revise the CCAMLR decision rules considering climate change. This framework needs to monitor changes in response to climate change, including krill distribution patterns along subareas 48.1-48.3.

4.2.7.3 Development of a risk assessment

During the last two years (2021-2022), the CCAMLR's WG have been working to determine scientific information to develop suitable Krill fisheries management strategies, indicating a critical shortage of standardised acoustic krill surveys.

The Russia delegation recently proposed a method to integrate the krill management along Subarea 48.1 to 48.4, which should not be conducted in stages (separate procedures by subarea) but as part of a coordinated management framework for krill fisheries in Area 48 (WG-ASAM-2022/07, WG-ASAM-2021/04 Rev.1). This approach requires the development of a Krill stock structure hypothesis, together with a spatial and temporal model distribution pattern of Krill. The proposal is to design and implement a system of standardised acoustic surveys, including synoptic and regional krill surveys in Area 48, accompanied by comprehensive environmental data collection and observations of marine mammals and seabirds. Implementing such a system of standardised surveys, encompassing Subareas 48.1 to 48.4, would provide the necessary and sufficient scientific support to develop a fisheries management strategy and provide the scientific basis for a comprehensive revision of CM 51-01 and CM 51-07.

4.2.8 Scientific based information related to P2

4.2.8.1 Observers' data (e.g.)

Data on bycatch species collected by observers on board the Antarctic Endeavour during the 2020/21 season (see **section 4.2.5.1** for more details on sampling procedure) were compiled in WG-EMM-2022/09. Tables below show the contribution (in %) by taxa to the total sampled weight for each subarea and fishing trip. Results show that the contribution of bycatch species to total catches in the krill fishery (in weight) is negligible. Besides, according to the observer reports, the percentage of hauls containing other species apart from Antarctic krill varied between 37% and 67% depending on the fishing trip.

No ice krill (*Euphausia crystallophias*) has been detected by the observers, despite the biological sampling performed on the krill fraction of the sampling.

Based on the information presented above it was concluded that there is no need to re-score any of the P2-PIs assessing the impact of the fishery on primary or secondary species.

Table 4.2.8.1.1. Bycatch fauna in haul carried out in trip 1 by the FV Antarctic Endeavour in Subarea 48.1 (Dec 2020-March 2021). WG-EMM-2022/09. The third column shows the contribution (in %) by taxa to the total sampled weight in samples containing that taxon, while the fourth column shows the % in relation to all samples containing bycatches.

CCRVMA code	Species	% catch of the species in all hauls with presence of it	% catch of the species in all hauls with incidental catch
KIF	<i>Chionodraco rastrispinosus</i>	0.00118	0.0011605
JIC	<i>Neopagetopsis ionah</i>	0.00296	0.0002201
WIC	<i>Chaenodraco wilsoni</i>	0.00024	0.0001603
FIC	<i>Cryodraco antarcticus</i>	0.00013	0.0000694
ANS	<i>Pleuragramma antarcticum</i>	0.00008	0.0000263

Table 4.2.8.1.2. Bycatch fauna in haul carried out in trip 1 by the FV Antarctic Endeavour in Subarea 48.2 (Dec 2020-March 2021). WG-EMM-2022/09. The third column shows the contribution (in %) by taxa to the total sampled weight in samples containing that taxon, while the fourth column shows the % in relation to all samples containing bycatches.

CCRVMA code	Species	% catch of the species in all hauls with presence of it	% catch of the species in all hauls with incidental catch
SGI	<i>Pseudochaenichthys georgianus</i>	0.07838	0.0218080
SSI	<i>Chaenocephalus aceratus</i>	0.01785	0.0102072
ANI	<i>Champsocephalus gunnari</i>	0.00279	0.0007876
NOG	<i>Notothenia gibberifrons</i>	0.00360	0.0007110
KIF	<i>Chionodraco rastrispinosus</i>	0.00311	0.0004896
NOR	<i>Notothenia rossii</i>	0.00828	0.0004269
JIC	<i>Neopagetopsis ionah</i>	0.00147	0.0001406
NOC	<i>Notothenia coriiceps</i>	0.01186	0.0000865
PGE	<i>Parachaenichthys georgianus</i>	0.00139	0.0000661
NOL	<i>Nototheniops larseni</i>	0.00039	0.0000490
LXX	Myctophidae	0.00023	0.0000358
SQQ	Teuthoidea	0.00178	0.0000237
JEL	Medusae	0.00154	0.0000222
POS	<i>Micromesistius australis</i>	0.00295	0.0000180
WIC	<i>Chaenodraco wilsoni</i>	0.00293	0.0000162
NOE	<i>Notolepis</i> spp.	0.00034	0.0000072
GYN	<i>Gymnoscopelus nicholsi</i>	0.00013	0.0000030
NTO	<i>Notolepis coatsi</i>	0.00041	0.0000024
ANS	<i>Pleuragramma antarcticum</i>	0.00007	0.0000018
SPX	Salpidae	0.02011	0.0000006
TRW	<i>Trematomus newnesi</i>	0.00011	0.0000006
FIC	<i>Cryodraco antarcticus</i>	0.00003	0.0000003
ELN	<i>Electrona antarctica</i>	0.00004	0.0000003

Table 4.2.8.1.3. Bycatch fauna in haul carried out in trip 2 by the FV Antarctic Endeavour in Subarea 48.1 (April-June 2022). WG-EMM-2022/09. The third column shows the contribution (in %) by taxa to the total sampled weight in samples containing that taxon, while the fourth column shows the % in relation to all samples containing bycatches.

CCRVMA code	Species	% catch of the species in all hauls with presence of it	% catch of the species in all hauls with incidental catch
KIF	<i>Chionodraco rastrospinosus</i>	0.00233	0.0016832
NOG	<i>Notothenia gibberifrons</i>	0.00448	0.0007396
WIC	<i>Chaenodraco wilsoni</i>	0.00092	0.0003503
JIC	<i>Neopagetopsis ionah</i>	0.0035	0.0000994
PGE	<i>Parachaenichthys georgianus</i>	0.0031	0.0000837
SSI	<i>Chaenocephalus aceratus</i>	0.00178	0.0000556
ANS	<i>Pleuragramma antarcticum</i>	0.0001	0.0000369
PMA	<i>Pagetopsis macropterus</i>	0.00005	0.0000054
GYA	<i>Gymnodraco acuticeps</i>	0.00005	0.0000028
SGI	<i>Pseudochaenichthys georgianus</i>	0.00029	0.0000028
FIC	<i>Cryodraco antarcticus</i>	0.00002	0.0000027
SQQ	Teuthoidea	0.00014	0.0000027
NOL	<i>Nototheniops larseni</i>	0.00004	0.0000023
NTO	<i>Notolepis coatsi</i>	0.00006	0.0000021
JEL	Medusae	0.00004	0.0000015
ELN	<i>Electrona antarctica</i>	0.00001	0.0000005
ELC	<i>Electrona carlsbergi</i>	0.000003	0.0000001
ISH	Isopoda	0.00001	0.0000005
NOR	<i>Notothenia rossii</i>	0.000002	0.0000001

Table 4.2.8.1.4. Bycatch fauna in haul carried out in trip 3 by the FV Antarctic Endeavour in Subarea 48.2 (June-August 2021). WG-EMM-2022/09. The third column shows the contribution (in %) by taxa to the total sampled weight in samples containing that taxon, while the fourth column shows the % in relation to all samples containing bycatches.

CCRVMA code	Species	% catch of the species in all hauls with presence of it	% catch of the species in all hauls with incidental catch
JIC	<i>Neopagetopsis ionah</i>	0.001739	0.0005175
SSI	<i>Chaenocephalus aceratus</i>	0.002088	0.0004518
LXX	Myctophidae	0.000688	0.0003743
KIF	<i>Chionodraco rastrospinosus</i>	0.002805	0.0003433
WIC	<i>Chaenodraco wilsoni</i>	0.00191	0.0002435
NTO	<i>Notolepis coatsi</i>	0.000801	0.0001961
ELC	<i>Electrona carlsbergi</i>	0.000453	0.0001864
JEL	Medusae	0.001114	0.0000904
SGI	<i>Pseudochaenichthys georgianus</i>	0.000635	0.0000399
CEP	Cephalopoda	0.000446	0.0000222
GYA	<i>Gymnodraco acuticeps</i>	0.001811	0.0000156
NOL	<i>Nototheniops larseni</i>	0.000183	0.0000102
GYI	<i>Gymnoscopelus</i> spp.	0.000067	0.0000061
KRT	<i>Euphausia triacantha</i>	0.000003	0.0000007
SPX	Salpidae	0.000003	0.0000001
AQM	Amphipoda	0.000002	0.0000001

Table 4.2.8.1.5. Bycatch fauna in haul carried out in trip 4 by the FV Antarctic Endeavour in Subarea 48.2 (September-November 2021). WG-EMM-2022/09. The third column shows the contribution (in %) by taxa to the total sampled weight in samples containing that taxa in particular, while the fourth column shows the % in relation to all samples containing bycatches.

CCRVMA code	Species	% catch of the species in all hauls with presence of it	% catch of the species in all hauls with incidental catch
SSI	<i>Chaenocephalus aceratus</i>	0.0010769	0.0002822
JIC	<i>Neopagetopsis ionah</i>	0.0020965	0.0002569
KIF	<i>Chionodraco rastrospinosus</i>	0.0013435	0.0002324
SGI	<i>Pseudochaenichthys georgianus</i>	0.0019984	0.0001385
ANI	<i>Champscephalus gunnari</i>	0.0016743	0.0001223
JEL	Medusae	0.0020968	0.0000622
ANH	<i>Anotopterus pharao</i>	0.0006929	0.0000254
CEP	Cephalopoda	0.0006315	0.0000231
NTO	<i>Notolepis coatsi</i>	0.0001413	0.0000176
ELC	<i>Electrona carlsbergi</i>	0.000028	0.0000117
KCZ	<i>Lithodes</i> spp.	0.0000123	0.0000005

4.2.8.2 ETP species

Despite no details on ETP species are provided in WG-EMM-2022/09, the assessment team could check that the observer reports confirm that the Antarctic Endeavour follows the on-board good practices in place to minimise incidental mortality of seabirds and marine mammals in accordance with the recently adopted [CM 25-03](#), without any breach having been recorded in the fishing trips performed during the 2021-22 fishing season. However, the use of the tory lines is subject external factors such as strong winds or poor visibility, prioritizing crew safety. Thus, the use of the tory lines varied between 55% and 89% of the total hauls performed, depending on the fishing trip. The presence of birds around the net is recorded in all hauls, while the presence of marine mammals tends to be much lower (between and 12% of the hauls).

These reports also provide details of the interactions occurred with seabirds and marine mammals, which are summarised as follows:

Fishing season 2020-2021:

- 1st trip (December 2020-March 2021): Sighting of 18 different species marine seabirds (mainly *Daption capense* and *Fulmarus glacialis*), and 2 species of marine mammals (*Megaptera novaeangliae* and *Balaenoptera physalus*) while hauling. No entanglements were recorded, but an individual of *Pygoscelis antarctica* jumped on top of the net in two occasions. In both cases the individuals were released without injuries.
- 2nd trip (March-June 2021). Sighting of 11 different species marine seabirds, and 2 species of marine mammals (*Megaptera novaeangliae*, *Arctocephalus gazella*) while hauling. No entanglements were observed during this trip.
- 3rd trip (June-August 2021). An entanglement of a single *Arctocephalus gazella* was recorded. The individual was released without injuries.
- 4th trip (August-November 2021) Sighting of 4 different species marine seabirds, and 3 species of marine mammals (*Megaptera novaeangliae*, *Balaenoptera physalus* and *Arctocephalus gazella*) while hauling. No entanglements were recorded.

Fishing season 2021-2022:

- 1st trip (December 2021-March 2022): Sighting of 12 different species marine seabirds (mainly *Daption capense* and *Macronectes giganteus*), and 3 species of marine mammals (*Megaptera novaeangliae*, *Balaenoptera physalus* and *Lobodon carcinophagus*) while hauling. Two individuals of *Pygoscelis antarctica* were entangled in a single event and died. The sealnet was then checked and repaired, since it was broken.

- 2nd fishing trip (March -May 2022): Sighting of 13 different species of marine seabirds (mainly *Daption capense* and *Fulmarus glacialis*), and 2 species of marine mammals (*Megaptera novaeangliae* and *Arctocephalus gazella*) while hauling were recorded for all hauls. The only entanglement recorded was an individual of *Pygoscelis antarctica* that got entangled with the net while hauling and was released alive and with no visible injuries.
- 3rd Fishing trip (May-July 2022). Sighting of 7 different species marine seabirds (mainly *Daption capense* and *Larus dominicanus*), and 2 species of marine mammals (*Megaptera novaeangliae* and *Arctocephalus gazella*) while hauling. A single entanglement of an individual of *Daption capense* was recorded. The animal was released without visible injuries.

4.3 Version details

Details on the version of the fisheries program documents used for this assessment are presented in table 2.4, as required in the 'MSC Surveillance Reporting Template v2.1'.

Table 4.3.1 – Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	Version 2.2, 25 March 2020 (25 September 2020)
MSC Fisheries Standard	Version 2.01, 31 August 2018 (28 February 2019)
MSC General Certification Requirements	Version 2.4.1, 7 May 2019 (28 September 2019)
MSC Surveillance Reporting Template	Version 2.1, 25 March 2019 (25 March 2019)

5 Results

5.1 Surveillance results overview

5.1.1 Summary of conditions

Table 5.1.1.1 lists the conditions set to the fishery, detailing the status and revised score (if applicable) after the current surveillance audit (SA).

Table 5.1.1.1. Summary of conditions

Condition number	Condition	Performance Indicator (PI)	Status	PI original score	PI revised score in this SA
1	The client shall provide evidence that the measures/partial strategy in place to maintain or to not hinder rebuilding of mackerel icefish (<i>C. gunnari</i>) will work.	PI 2.1.2	Closed (2SA)	75 (re-scored to 90 at 2SA)	N/A
2	A harvest strategy should be implemented which is responsive to the state of the stock and the elements of the harvest strategy work together towards ensuring that the stock is above the point where serious ecosystem impacts could occur and is at or fluctuating around a level consistent with ecosystem needs at multiple scales.	PI 1.2.1	On target	85 (Revised to 70 at 2SA)	N/A

5.1.2 Total Allowable Catch (TAC) and catch data

The Antarctic Endeavour reports estimates of catches in green weight to Sernapesca on a daily basis, and then Sernapesca reports to CCAMLR. In turn, the CCAMLR Secretariat reports to Subpesca the overall krill catches by subarea on a weekly basis to allow monitoring of the consumption of the trigger levels established per each subarea (155,000 tons for 48.1, 279,000t for 48.2, 279,00t for 48.3 and 93,000t for 48.4).

The catch of krill (320,014 tons) in the 2020/21 season was 30% lower than in the previous fishing season. Unlike in the previous fishing season, total catches in Subarea 48.1 (142,703 tons) were below that catch limit adopted in CMM 51-07 (155,000 tons). The other subareas has always been exploited below the trigger levels (in 2020/21 a total of 191,181 tons were caught in the 48.2, and 19,289 tons in 48.3). There is no quota allocation to flag States or vessels.

Table 5.1.2.1 presents the Precautionary catch limit (PCL), the total trigger limit for the entire area 48 and the catches of the certified vessel. The weight of the final product and the conversion factor are also presented.

Table 5.1.2.1. Antarctic krill Precautionary Catch Limit (PCL) and Trigger level in FAO Area 48 and UoC's catch data for the last three fishing seasons.

Fishing season (Dec 1-Nov 30)	2018/2019	2019/2020	2020/2021
PCL (t)	5,600,000	5,600,000	5,600,000
CCAMLR Trigger level (t)	620,000	620,000	620,000
UoC share of TAC	N/A	N/A	N/A
Total green weight caught by UoC (t)	21,131	21,670	22,382
Total production (dry krill) (t)	2,742	3,071	2,895
Conversion factor	7.71	7.06	7.73

5.1.3 Recommendations

5.1.3.1. Progress on existing recommendations

RECOMMENDATION 1. Although CM51-06 targets a 100% on-board observer's coverage for the 2019/20 fishing season, it is recommended that the assessed vessel implements it since the beginning of its operations (December 2017), as stated by the client during the site visit.

Status: Closed at 1SA

RECOMMENDATION 2. Despite previous concerns on the non-reporting of fish bycaught in the C1 data, WG-FSA has recognized (WG-FSA16/04) recent improvements in the reporting of fish bycatches by the commercial fishery (C1 form). However, frequencies of occurrence shown in C1 form are normally much lower than those reported by observers. Therefore, it is recommended that the UoA pays special attention to provide a detailed record of bycatches in the C1 form.

Progress 2SA: Results from the C1 forms were taken into consideration when elaborating the report handed to the team (WG-EMM-2022/09). However, some discrepancies were found between estimates of icefish bycatches presented in Arana (2021) and comments included in the observer reports (see **section 4.2.8.2** for more details). It would be advisable to review all fish bycatch data collected so far by observers and C1 forms to ensure they all match.

Progress at 3SA: One of the observers' report includes a note detailing that observers should record the species included in the sample taken. Currently, the observers reports do not detail the species composition. This note states that this task should be added to current functions of the observers.

RECOMMENDATION 3. New measures have been implemented on board the UoA to reduce interactions with birds (a wireless net sounder and a laser bird scaring device). It is recommended that the observer on board the UoA devotes sufficient effort to monitor warp strikes and incidental mortality of birds in the gear, so their effectiveness can be properly evaluated.

Progress and status: Closed at 2SA.

RECOMMENDATION 4. It is not unnoticed to the assessment team that F/V Antarctic Endeavour is a new vessel which is just beginning krill fishing operations, but draws the attention to the need that skipper and all crew members are well aware of the current conservation measures in relation to dumping or discarding and ensure their compliance.

Status: Closed at 1SA

RECOMMENDATION 5. It is not unnoticed to the assessment team that F/V Antarctic Endeavour is a new vessel which is just beginning krill fishing operations, but make it clear that there is a need to have on board all the instruments and tools required to properly comply with the fishery regulations in relation to provide accurate estimations of the green weight of krill caught.

Status: Closed at 1SA

RECOMMENDATION 6. The Client should use its influence with its national representatives speaking collectively as a Member of CCAMLR to stress the need to ensure swift and accurate catch reporting, forward projection and closure forecasting mechanisms to prevent the krill fishery generally ever exceeding Subarea catch limits.

Progress 2SA: As detailed in **sections 4.2.7 and 5.1.2**, total catches in Subarea 48.1 (157,082 t) exceeded 1.3% the catch limit adopted in CMM 51-07 (155,000 t). This was the second year in a row that the catch limit in Subarea 48.1 is exceeded since catches in 2018/19 exceeded the limit by 0.6%. The client is aware of this situation and considers that the solution is to improve the weekly report of overall catches sent by CCAMLR to the fishing companies. The client considers that ARK should channel this demand but recognizes that no communication to the CCAMLR has been sent in this sense.

Progress at 3SA: Several circumstances have been informed regarding catch limit overruns for Krill fishery in Subarea 48.1 for seasons 2018/2019 (0.6%), 2019/2020 (1.3%) and 2020/2021 (4.4%). There has not been an overrun during the current season (2021/2022). The catch limit for krill in Subarea 48.1 for the 2021/2022 season was 155 000 tons, reporting a surplus of 11,587 tons (7.5%). The main identifiable reason is the rapid changes in catch taken per day, which contributed to catching limit overruns (WG-FSA-2022/05).

RECOMMENDATION 7. The client should make an effort to clarify whether ice krill is being caught as part of the Antarctic krill fishery, either improving sampling methodologies on board or exploring the possibility of using acoustic data collected during fishing operations.

Progress: Observers' reports do not mention that any individual of ice krill has been identified, despite a great effort of sampling is devoted to (i) get representative length frequency distributions of Antarctic krill and (ii) observe sex and maturity stages of Antarctic krill, meaning that a detailed examination of krill is done at an individual level. This is consistent with data collected by all observers on board trawlers targeting krill in the Convention Area. The client maintained that they are warning the observers about the importance of a detailed species determination to avoid any misclassification between the two krill species. However, there is no evidence that any specific sampling methodology has been adopted in this sense or that the observers are effectively aware of this issue. During the surveillance audit, INACH was not aware that the observers on board the Antarctic Endeavour were paying special attention to this issue.

Progress at 3SA: No ice krill has been found by the observers. However, only one observer report details that identifying ice krill was among the tasks to be accomplished by the observer. According to the INACH representative this issue has not been discussed any further at the WG-EMM.

RECOMMENDATION 8 (PI 1.2.3a). Estimates of the proportion of the adult biomass that spawns successfully should be made.

Progress at 3SA: During season fishing 2021/2022, the working groups have been progressing to get better estimates of Krill Abundance. An example is a survey on nominated transects by fishing vessels (WG-ASAM-2022/12 Rev. 1) which, together with the first nominated CCAMLR transects collected by fishing vessels in Subarea 48.3, provides essential information on the winter distribution of krill near South Georgia. The WG-ASAM-2022/03 paper presented the ROSSKRILL project, a large-scale acoustic survey performed by the Italian RV Laura Bassi in January 2022 in the western Ross Sea. And finally, the acoustic survey off the South Orkney Islands during February 2022 provided distribution information and abundance estimates of Krill (WG-ASAM-2022/14). This kind of work should give baselines to progress on Area 48.

RECOMMENDATION 9 (PI 1.2.4a). Regular sub-area stock surveys are continued, robust estimates of biomass in sub-areas are established, and stock assessment models are developed at a sub-area scale in order to determine appropriate precautionary catch limits which will take into account the potential fine-scale impact of the krill fishery on land-based predators, and to provide sufficiently regular estimates of krill stock biomass in order to assess whether krill stocks have been impacted by ecosystem changes caused by climate change.

Progress at 3SA: Late last year, the Scientific Committee (SC-CCAMLR 40) highlighted the importance of standardisation of data collection and data reporting procedures for acoustic krill biomass surveys. Similarly, the ongoing improvement of technology and algorithms for processing acoustic data may soon make near-real-time processing of acoustic data a fact. The WG-ASAM 2022 acknowledges that acoustic data from fishing vessels, moorings, autonomous vehicles, and other platforms could enable rapid updates of krill fishery management, including the detection of impacts caused by changing environmental conditions and fishing activity (WG-ASAM-2022/07, WG-ASAM-2022/13, WG-ASAM-2022/P01, WG-ASAM-2022/P02). All these outcomes, together with data collected from other types of data collection platforms, show progress toward a better understanding of Krill population dynamics and its main drivers.

RECOMMENDATION 10. During the surveillance audit it was recognized that sampling procedures to determine fish bycatch on board the Antarctic Endeavour triggered consultations by the CCAMLR Secretariat (see section 4.2.5). Besides, the client confirmed that results on fish bycatches presented in Arana & Rolleri (2020) and Arana (2021) come from different samples (1kg samples in the case of Arana & Rolleri (2020) vs 25kg samples in the case of Arana (2021)). To avoid misunderstandings, the client should clarify all sampling procedures in place and how they are used to estimate fish bycatches.

Progress at 3SA: Both the client and INACH confirmed that the 25kg samples is now being used for all purposes.

5.2 Re-scoring Performance Indicators

No re-scoring took place at this surveillance audit.

5.3 Conditions

5.3.1 Closed Conditions

No conditions were closed at this surveillance audit.

5.3.2 Progress against conditions

Table 5.3.2.1. Progress on condition 2 -PI 1.2.1-

Performance Indicator	PI 1.2.1. There is a robust and precautionary harvest strategy in place Sla. The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.
Score	70 (60 for Sla)
Justification	Whilst the harvest strategy appears to be responsive to the state of the stock at the scale of the whole of Area 48, this response is based upon full large-scale synoptic biomass surveys which have taken place only twice in the last 20 years. The harvest strategy does not reflect changes in krill biomass at small geographical scales as identified through regular small scale biomass surveys, or if there is evidence that local depletions of krill biomass may have taken place which impact adversely on dependent land-based predators. In other words, the harvest strategy may not be sufficiently responsive at a fine-

	scale local level in order to meet ecosystem needs. The krill companies under the umbrella of ARK may have voluntarily stopped fishing in areas where there may be an adverse impact on predators, but there is no formal mechanism in place to restrict fishing in areas where there is local depletion of krill biomass.
Condition	A harvest strategy should be implemented which is responsive to the state of the stock and the elements of the harvest strategy work together towards ensuring that the stock is above the point where serious ecosystem impacts could occur and is at or fluctuating around a level consistent with ecosystem needs at multiple scales.
Condition start	June 2021
Condition deadline	June 2026. In accordance with 7.18.1.6, exceptional circumstances were applied when the condition was set.
Milestones	<p><u>Year 1 (2022)</u>: Resulting score = 70.</p> <p>The Client should provide evidence that WG-EMM of CCAMLR has made significant progress in the revision of assessment methods and the development of data layers and implementation of the risk assessment framework to evaluate catch distribution options at the area, sub-area and fishing ground scales.</p> <p><u>Year 2 (2023)</u>: Resulting score = 70.</p> <p>The Client should provide evidence that WG-EMM has made significant progress on the three components of the preferred management approach: risk assessment, krill stock assessment, and subarea biomass estimates.</p> <p><u>Year 3 (2024)</u>: Resulting score = 70.</p> <p>The Client should provide evidence that WG-EMM has completed its work on the three components of the preferred management approach and presented its output to the Scientific Committee of CCAMLR.</p> <p><u>Year 4 (2025)</u>: Resulting score = 70.</p> <p>The Client should provide evidence that the Scientific Committee of CCAMLR has proposed to the Commission a new harvest strategy that is responsive to the state of the stock and ensures that the stock is above the point where serious ecosystem impacts could occur, and is at or fluctuating around a level consistent with ecosystem needs at multiple scales.</p> <p><u>Year 5 (2026)</u>: Resulting score ≥ 80.</p> <p>The Client should provide evidence that CCAMLR has implemented a new harvest strategy that is responsive to the state of the stock and the elements of the harvest strategy work together towards ensuring that the stock is above the point where serious ecosystem impacts could occur and is at or fluctuating around a level consistent with ecosystem needs at multiple scales.</p>
Progress on Condition (Year 1: 2022)	<p>The WGs, in the short and medium timeframe, have identified key tasks that would help check this condition. Each WG has a detailed Inter-sessional work plan with three main themes: (1) Target species, (2) Ecosystem impacts, and (3) Administrative topics, which cover the following priority research issues:</p> <p>WG-EMM</p> <p>1-a Develop methods to estimate biomass for krill (short)</p> <p>1-b Develop stock assessments to implement decision rules for krill (short/medium)</p> <p>1-c Management strategy evaluations for target species (low urgency)</p> <p>2-a Ecosystem monitoring (long)</p>

	<p>2-b Spatial management (short/medium)</p> <p>2-c By-catch risk assessment for krill and finfish fisheries (medium)</p> <p>2-d Habitat protection from fishing impacts (medium)</p> <p>2-e Monitoring and adaptation to effects of climate change, including acidification (medium)</p> <p>3-a Advise on database facilities required through DSAG</p> <p>3-b Advise on quality control and assurance processes for data provided to and supplied by the Secretariat</p> <p>3-c Refine the scheme of international scientific observation (SISO) across all fisheries</p> <p>WG-FSA</p> <p>1-a Develop methods to estimate fish bycatch for the krill fishery (short)</p> <p>1-b Develop stock assessments to implement decision rules for krill (short, except MSE see section 4.2.7.2)</p> <p>1-c Develop methods to estimate biomass for finfish (medium)</p> <p>1-d Develop stock assessments to implement decision rules for finfish (medium)</p> <p>1-e Management strategy evaluations for target species (medium)</p> <p>2-a Ecosystem monitoring (TBD)</p> <p>2-b By-catch risk assessment for krill and finfish fisheries (each year)</p> <p>2-c Habitat protection from fishing impacts (medium)</p> <p>2-d Monitoring and adaptation to effects of climate change, including acidification (TBD)</p> <p>Issues covered by the inter-sessional work plans adopted by both WG-EEM and WG-FSA show considerable progress on the topics that the new krill management approach should tackle (section 4.2.7). Notably, issues regarding the spatial scale in population and catch limit analysis have been backed by progress on standardizing procedures for survey design and data layers analysis (section 4.2.7.1).</p> <p>Short timeframe issues, such as bullet points for WG-EMM 1a-b and 2b, and WG-FSA 1a-b, 2b above, match the milestone schedule for identifying a new krill harvest strategy by 2025 and the subsequent implementation by 2026. However, because of the dynamic of inter-sessional work plans, the Client must monitor the progress of research activities in the CCAMLR working groups.</p>
Progress status	Based on the findings detailed the condition was found to be ON TARGET .

5.4 Client Action Plan

No updates to the client action plan were required as a result of this surveillance audit.

6 References

- Arana, P.M., Rolleri, R. 2019. Operacion del Antarctic Endeavour en la pesquería de krill antartico, año 2019. Valparaíso, Septiembre 2019. Listed in the 1st surveillance report. Available under request
- Arana, P.M. 2021. Informe complementario. Deris, S.A. -Pesca Chile- Pesquería de krill antártico. Segunda auditoría de vigilancia. Report handed to the assessment team. Listed in the 2nd surveillance report. Available under request.
- Honneland, G., Revenga, L., Addison, J. 2020. Aker Biomarine Antarctic krill. Public Certification Report. Available at: <https://fisheries.msc.org/en/fisheries/aker-biomarine-antarctic-krill/@assessments>
- SC-CAMLR-40. Fortieth Meeting of the Scientific Committee. 2021. CCAMLR Annual Meeting Report.
- SC-CAMLR-40/BG/01. Catches of target species in the Convention Area. 2021. CCAMLR Secretariat.
- SC-CAMLR-40/BG/16. Report to SC-CAMLR-40 and CCAMLR-40 by the Association of Responsible Krill harvesting companies (ARK). 2021. ARK.
- SC-CAMLR-41/19. Proposals and comments on developing a krill resource management strategy for Area 48 in revising krill fisheries management in Subarea 48.1. Available on September 2022. Russian Federation Delegation.
- WG-ASAM 2021/04 Rev.1. Results of acoustic survey in Subarea 48.1 and 48.2 carried out by Russian RV «Atlántida» in 2020. 2021. S. Kasatkina, A. Abramov, M. Sokolov, A. Sytov and D. Kozlov.
- WG-ASAM-2022. Report of the Working Group on Acoustic Survey and Analysis Methods. 2022. June 2022.
- WG-ASAM-2022/03. Monitoring krill in the Ross Sea MPA. 2022. A. De Felice, G. Canduci, I. Biagiotti, G. Giuliani, I. Costantini and I. Leonori.
- WG-ASAM-2022/07. Proposals to standardise the collection and processing of krill acoustic survey data. 2022. S. Kasatkina and A. Abramov.
- WG-ASAM-2022/12 Rev. 1. CCAMLR nominated acoustic transects undertaken by fishing vessels at South Georgia in 2021. 2022. S. Fielding and J. Arata.
- WG-ASAM-2022/13. Proposal for standardised methods for processing and reporting krill acoustic survey results. 2022. G. Macaulay.
- WG-ASAM-2022/14. Distribution and abundance of Antarctic krill off South Orkney Islands, February 2022. 2022. S. Menze, B. Krafft and G. Macaulay.
- WG-ASAM-2022/P01. Antarctic krill biomass and flux measured using wideband echosounders and acoustic doppler current profilers on submerged moorings. 2022. G. Cutter, C. Reiss, S. Nylund and G. Watters.
- WG-ASAM-2022/P02. Estimating the average distribution of Antarctic krill *Euphausia superba* at the northern Antarctic Peninsula during austral summer and winter. 2022. V. Warwick-Evans, S. Fielding, C.S. Reiss, G.M. Watters and P.N. Trathan.
- WG-EMM-2022/09. Chilean operations in the Antarctic krill fishery, year 2020-2021. 2022. P.M. Arana and R. Rolleri.
- WG-FSA-2021/08. Estimation of capacity in CCAMLR krill fisheries. 2021. CCAMLR Secretariat.
- WG-FSA-2022/05. Compendium of catch limit overruns from the 2018 to 2022 seasons. 2022. CCAMLR Secretariat.
- WG-FSA-2022/06. Analysis of the risk of exceeding catch limits in the krill fishery using daily reporting. 2022. CCAMLR Secretariat.
- WG-SAM-2022. Report of the Working Group on Statistics, Assessment and Modelling. 2022. July 2022.
- WG-SAM-2022/28 Rev. 2. An alternative method of calculating precautionary yield. 2022. D. Kinzey and G.M. Watters.

Complete schedule of CMs in force in 2021/22 can be downloaded as a pdf file from the following link:
<https://www.ccamlr.org/en/document/conservation-and-management/schedule-conservation-measures-force-2021/22>

7 Appendices

7.1 Evaluation processes and techniques

7.1.1 Site visits

The third annual surveillance audit for the first period of certification was conducted offsite between September 5 and 7, 2022. Both team members participated in all meetings listed in **Table 7.1.1.1**. All meetings were held according to schedule.

Table 7.1.1.1. Details of the meetings held during the remote visit for the 3SA audit of Pescachile - Antarctic krill fishery.

Date	Time (CEST)	Institution	Attendees
Monday (05/09/2022)	15:30-16:30	PESCACHILE, S.A.	Patricio Arana (Client's assessor)
Tuesday (06/09/2022)	14:00-14:50	INACH	Cesar Cárdenas Lorena Rebolledo Francisco Santa Cruz
	15:00-16:30	ARK	Javier Arata (Executive Officer)
	18:00-18:50	SERNAPESCA	Pablo Ortiz (Fisheries Deputy Director) Francisco Fernandez Urzua
	20:30-21:15	SUBPESCA	Aurora Guerrero (Chief of the Fisheries Administrative Division) Marcos Troncoso
Wednesday (06/09/2022)	16:00-16:50	AKER BIOMARINE, ASA	Pål Skrogrand (VP Policy & Impact)
Thursday (07/09/2022)	15:00-16:10	PESCACHILE, S.A.	Enrique Gutierrez

7.1.2 Stakeholder participation

The site visit for the surveillance audit was announced at the MSC website on August 5, 2022 (this can be downloaded from: <https://fisheries.msc.org/en/fisheries/pesca-chile-s.a.-antarctic-krill-fishery/@assessments>). In addition, the notification of the surveillance audit was sent to a list of stakeholders identified during the initial assessment and reviewed before current surveillance audit. This list included up to 32 different contacts from management institutions (SUBPESCA, MINREL, SERNAPESCA, Chilean Army, CCAMLR Secretariat), research institutions (UACH, INACH, CEFAS, University of St Andrews, BAS), NGOs (WWF, Oceana, ASOC, AWI, Greenpeace, Birdlife) and CABs from overlapping fisheries (Lloyd's Register and Control Union). No written comments were received before the site visit.

Further, the team with the assistance of the client elaborated a list of key stakeholders to be interviewed and were contacted via email and telephone to ensure their participation and arrange the meetings. The list of institutions and people finally interviewed during the site visit is detailed in **Table 7.1.1.1**.

7.2 Stakeholder input

The stakeholder input was restricted to the information collected during the meetings held at the site visit and the documents sent by the stakeholders as a result of the requests made by the team during those meetings. Overall, the surveillance team is satisfied that the information presented and summarised was adequate to assess the progress of the fishery against the MSC requirements.

Table 7.2.1 presents the main topics discussed with the different stakeholders during the different meetings. All relevant information collected on updates or modifications affecting the fishery is summarized in **Section 4.2** of the current report, while harmonisation activities with overlapping fisheries are presented in **Appendix 7.4**. All documents used for the assessment are listed in **Section 6** (References).

No other stakeholder inputs were received by email using the template provided by MSC.

Table 7.2.1 Details of the main topics discussed during the remote visit carried out as part of the current surveillance audit.

Stakeholder	Topics discussed
Client	Feedback (and evidence if deemed necessary) on: <ul style="list-style-type: none"> - Performance of the certified ship during 2020-2021: N trips, place and dates of landings/ transshipments, % observer coverage, inspections (N and results), performance of the electronic remote monitoring - Update on the management decisions affecting the fishery during 2020-2021. - Update on the discussions held at the SC - Details on the data collected by the observers on board. - Update on the MoU signed by the ARK with NGOs
SERNAPESCA	Feedback (and evidence if deemed necessary) on: <ul style="list-style-type: none"> - Inspection and monitoring activities related to this fishery carried out during 2020-2021. - VMS data - Update on the performance of the ERM (cameras onboard) - Coordination with other relevant Chilean Institutions (Seccion Nacional) and CCAMLR (SCIC). Meetings held during 2021 and 2022.
INACH	Feedback (and evidence if deemed necessary) on: <ul style="list-style-type: none"> - Options discussed at the WG-EMM regarding the expiry date of CM 51-07 - Feedback on the observer program for CCAMLR (eg. training) - Implementation of the observer program aboard the Antarctic Endeavor (% coverage, results, any issues derived from the pandemic...) - Observer sampling methods - Coordination with other relevant Chilean Institutions (Seccion Nacional) and CCAMLR (WG-EMM). Meetings held during 2021
SUBPESCA	Feedback (and evidence if deemed necessary) on: <ul style="list-style-type: none"> - Coordination with other relevant Chilean Institutions (Seccion Nacional) and CCAMLR (Annual Meeting of the Commission). Meetings held during 2021 and 2022 - Status and performance of the certified vessel and feedback from the CCAMLR Secretariat - Management decisions adopted during 2020-2021 - Options discussed at the Commission regarding the expiry date of CM 51-07 - Other relevant issues for Chile within the CCAMLR Area
AKER BIOMARINE	<ul style="list-style-type: none"> - Feedback from the BV team on the harmonisation discussions and on how condition on PI 1.2.1 was set last year. - Feedback on the discussions held at the WG-EMM and the Commission regarding the expiry date of CM 51-07 and progress on designing and implementing a new harvest strategy for the krill - Sharing relevant scientific papers - Update on relevant initiatives lead by the ARK

7.3 Revised surveillance program

The surveillance level determined in the PCR was 5 (3 on-site surveillance audits and 1 off-site surveillance audit). However, the pandemic forced the CAB to carry an off-site second surveillance audit, thus, lowering the surveillance level to 4. After the second surveillance audit, and considering that milestones of the only open condition (PI 1.2.1) will be mainly assessed based on the details contained in the CCMLAR's reports, the CAB proposed to have an off-site audit with 2 auditors, and the surveillance level was changed to Level 3 (i.e., 1 on-site and 3 off-site surveillance audits) (see **Table 7.3.1**). Thus, this third surveillance audit was already scheduled as a remote audit. However, the next surveillance audit will be the last audit of the first certificate cycle and will be held simultaneously with the site visit for the recertification. Therefore, the fourth surveillance audit is scheduled as an on-site visit involving the entire assessment team (3 team members) (see **Table 7.3.3**).

Due to the MSC's 6-month derogation for the COVID-19 situation, the Anniversary date of the certificate and the proposed date of surveillance audit have both been postponed 6 months (see **Table 7.3.2**). It is expected that the fourth surveillance audit will take place close to the new anniversary date of the fishery.

See tables below for the scheduled surveillance program.

Table 7.3.1. Fishery surveillance program

Surveillance level	Year 1	Year 2	Year 3	Year 4
Level 3	Off-site surveillance audit	Off-site surveillance audit (due to the pandemic)	Off-site surveillance audit	On-site surveillance audit & re-certification site visit

Table 7.3.2. Timing of surveillance audit

Year	NEW anniversary date of certificate	Proposed date of surveillance audit	Rationale
4	March 5, 2023	March 2023	NA

Table 7.3.3. Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
4	On-site	3 on-site auditors	Considering that the last surveillance audit will be carried out together with the recertification audit, the CAB proposes to have an on-site audit with a full assessment team.

7.4 Harmonised fishery assessments

The MSC Fisheries Certification Process v2.2 (FCP) sets out procedures for ensuring consistency of outcomes in overlapping fisheries (see Annex PB of the FCP). The intention of this process is to maintain the integrity of MSC fishery assessments.

MSC overlapping fisheries have been identified as fisheries targeting Antarctic krill and operating within CCAMLR Area 48. MSC Fisheries with overlapping UoAs are detailed below in **Table 7.4.1** and the relevant PIs requiring harmonisation are detailed. To determine which PIs are subject to harmonisation the team followed the justification provided in the PCR of the Aker Biomarine Antarctic krill fishery (see Hønneland et al. (2020) for more details), and a summary of the information supporting this decision is detailed in **Table 7.4.2**.

Table 7.4.1. Overlapping fisheries: status and PIs to harmonise. Source: MSC website consulted on 23/09/2022.

Fishery name (& CAB)	Certification status and date	Performance Indicators to harmonise
Aker Biomarine Antarctic krill (Lloyd's Register, LR)	Certified since 2010 (latest assessment published: First Surveillance Report published 08/09/2022)	P1: all PIs P2: PI 2.2.1a; 2.3.1 (a); PI 2.4.1b; PI 2.4.2a; PI 2.4.2c
Jeong Il Corporation Antarctic krill fishery (Control Union, CU)	Certified in 2021 (latest assessment published: PCR 30/March/2022)	P3: all PIs (international component of the management system)
Rimfrost Antarctic krill (DNV)	Withdrawn	None

Table 7.4.2. Overlapping fisheries: supporting information

Supporting information	
<p>P1: The target stock is the same, hence harmonisation on all PIs is required.</p> <p>P2: As in Hønneland et al. (2020), P2-PIs were assessed in respect to Table provided in the MSC directions for harmonisation between overlapping fisheries (see https://mscportal.force.com/interpret/s/article/What-are-the-MSC-requirements-on-harmonisation-multiple-questions-1527586957701). The geographical range of all 3 UoAs include CCAMLR Area 48.</p> <p>P3: The international component of the management system (CCAMLR) is the same, so it must be harmonised. The national components are different between the 3 MSC-certified fisheries (Chilean, Norwegian and Korean management systems respectively).</p>	
Was either FCP v2.2 Annex PB1.3.3.4 or PB1.3.4.5 applied when harmonising?	No
Date of harmonisation meeting	First exchange of emails the CABs took place August, and the remote meeting was held in August 19, 2022.
If applicable, describe the meeting outcome	
<p>A harmonisation meeting was held in August 2022 between Control Union, Bureau Veritas and LRQA on 19th August 2022 to clarify and harmonise the timeline for closing the condition on PI 1.2.1. The timeline and deadline had already been harmonised as part of the harmonisation activities developed during the previous surveillance audit, and the condition was set with a deadline in 2026, and that's how it was published in the 2nd surveillance report of the Pescachile's fishery in 2021. However, Jeong Il later changed this deadline, moving it from August 2026 to August 2025. This new deadline was published in their FDR and differed from that on the PCDR (published almost at the</p>	

same time that the 2nd surveillance audit report for the Chilean fishery). This change from 5 to 4 years in the timeline for closing the condition was not discussed with the other CABs before the publication of the FDR.

During the conversation held between the CABs it was agreed to harmonise the condition deadline as much as possible with the Jeong II. In September Aker published its surveillance report determining that the first opportunity for LRQA to close the condition will be the Aker Biomarine Antarctic Krill fishery's first surveillance after re-certification (i.e December 2025). As already explained above, the deadline for the Pescachile's krill fishery was set for the second surveillance audit of the second certificate cycle (by March 2026). Since both the SC and the CCAMLR Committee always meet by the end of the year, only in 2026 would be possible to audit the decisions adopted in 2025. So, the current deadline (March 2026, as it was published in the previous surveillance audit) will be maintained as it is aligned with the deadlines considered for the overlapping fisheries.

The scores awarded by the different MSC overlapping fisheries to the PIs subject to harmonisation are presented in **Table 7.4.3**, and any differences in scoring are explained in **Table 7.4.4**.

Table 7.4.3. Scoring differences

Performance Indicators (PIs)	Pescachile	Aker Biomarine (1 st Surveillance report)	Jeong II (PCR)
1.1.1A	80	80	80
1.2.1	70	70	70
1.2.2	85	85	85
1.2.3	80	80	80
1.2.4	85	85	85
2.1.1(a)	<i>No impacts on main primary spp.</i>	=	=
2.2.1	80	80	80
2.3.1(a)	N/A	N/A	N/A
2.4.1(b)	Seamounts (100) Hydrothermal vents (100) Cold-water corals (100) Sponges (100)	=	=
2.4.2(a)	As above (100)	=	=
2.4.2(c)	As above (100)	=	=
3.1.1	95	95	85
3.1.2	100	100	85
3.1.3	100	100	100
3.2.1	90	90	90

3.2.2	95	95	85
3.2.3	85	100	85
3.2.4	90	90	90

Table 7.4.4. Rationale for scoring differences

If applicable, explain and justify any difference in scoring and rationale for the relevant Performance Indicators (FCP v2.2 Annex PB1.3.6)

PI 3.1.1. Findings at CCAMLR level justify a score of 95 for all three overlapping fisheries. Shortages at national level are preventing the Jeong Il Corporation fishery to score 90

PI 3.1.2- Findings at CCAMLR level justify a score of 100 for all three overlapping fisheries. Shortages at national level are preventing the assessment team for the Jeong Il Corporation fishery to score 100

PI 3.2.2- Findings at CCAMLR level justify a score of 95 for all three overlapping fisheries. A lack of accountability and transparency of the management system and decision-making process at national level is preventing Jeong Il Corporation fishery to score 80 in SI(d).

PI 3.2.3- Differences in the MCS systems in force in each country (e.g., effective deterrence of each sanctioning regime, transparency...), together with differences in the performance of the assessed vessels are accounting for differences in scoring.

If exceptional circumstances apply, outline the situation and whether there is agreement between or among teams on this determination

N/A