Marine Stewardship Council fisheries assessments

Chilean Jack mackerel industrial purse seine fishery

4th Surveillance

Conformity Assessment Body (CAB)	Global Trust Certification
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Fishery client	SONAPESCA
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2. Glossary

Term	Definition
ABC	Acceptable Biological Catch
Blim	Limit Reference Point for Biomass
B0	Virgin biomass or initial biomass when there is no fishing
BRP	Biological Reference Point
CMM	Commission
COMM	Conservation and Management Measures
CCT-J	Comité Científico Técnico Jurel
EEZ	Exclusive Economic Zone
F	Fishing Mortality
HCR	Harvest Control Rules
IFOP	Instituto Fomento Pesquero
INPESCA	Instituto de Investigación Pesquera
JJM	Joint Jack Mackerel Model
JMSG	Jack Mackerel Sub-group
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
P1, P2, P3	MSC's Guiding Principles
PI	Performance indicator
SE	Scoring element
SERNAPESCA	Servicio Nacional de Pesca y Acuicultura
SG	Scoring guidepost
SPRFMO	South Pacific Regional Fisheries Management Organization
SSB	Spawning Stock Biomass
SUBPESCA	Subsecretaría de Pesca y Acuicultura
SWG	Science Working Group
TAC	Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
VMS	Vessel Monitoring System

3. Executive summary

This report contains the findings of the 4th surveillance audit for the Chilean Jack mackerel industrial purse seine fishery for SONAPESCA (http://www.sonapesca.cl). The surveillance audit process began in June 2024 and was conducted according to relevant requirements as outlined in MSC Fisheries Certification Process (FCP) v.2.3. The MSC Scheme Documents and Templates outlined in Section 4. 2 were used during this surveillance audit.

The audit team for this surveillance consists of Dr. Virginia Polonio as lead assessor and traceability, Dr. Ivan Mateo responsible for P1, Ms. Ana Ayres responsible for P2 and Ms. Edith Saa, assessor responsible for P3.

The audit was conducted as an off-site surveillance audit which included a remote desktop review of documentation relating to changes in management and science in the fishery and a remote 'site visit' which involved engagement with the client and relevant stakeholders through remote interviews. The remote 'site visit' was carried out from July 22nd to July 25th, 2024.

The audit focused on changes to the fishery and its management since the full assessment carried out in 2019 and assessed the fishery's continuing compliance with the MSC Principles and Criteria for Sustainable Fishing. The audit team evaluated progress against the agreed Year 4 milestones for the 3 outstanding conditions. All the remaining conditions have been closed at the 4th surveillance audit.

3.1 Summary of audit process

Table 1. Summary of offsite visits.

Date	Time Chile Local Time	Organization
Monday July 22nd, 2024	09:00 AM	SONAPESCA (Client opening meeting)
Monday July 22nd, 2024	10.30 AM	SONAPESCA (conditions and update of information)
Monday July 22nd, 2024	10:00 AM	IFOP Discard research group
Tuesday July 23rd, 2024	10:00 AM	ATF Birdlife
Wednesday July 24th,	09:00 AM	IFOP (Erik Gaete)
Wednesday July 24th,	11:30 AM	SUBPESCA
Wednesday July 24th,	1:00 PM	INPESCA
Thursday July 25th 2024	11:00 AM	IFOP (Ignacio Paya) [Stock Assessments]
Thursday July 25th 2024	1:00 PM	Assessment team to review inputs
Thursday July 25th 2024	5:00 PM	SONAPESCA (Client closing meeting)

Global Trust Certification would like to thank all management and scientific agencies, industry bodies and stakeholders for their collaboration and for providing the information and data necessary to carry out this assessment.

3.2 Summary of history of assessments

The initial assessment of fishery was announced on the MSC website in January 2018 and was completed on 26th April 2019. The initial assessment was conducted by Lloyd's Register. The fishery certificate was transferred from Lloyd's Register to Global Trust Certification/NSF (previously SAI Global) on January 9th, 2020.

During the initial assessment, seven conditions were raised against the fishery on Performance Indicators (PIs) 1.2.1, 1.2.2; 2.2.2, 2.3.2, 3.2.2, 3.2.3, and 3.2.4. During the 1st surveillance audit the team concluded that the requirements of the conditions on PIs 3.2.2 and 3.2.4 had been met, therefore both PIs were rescored, and the conditions were closed. During the 2nd surveillance audit the team concluded that the requirements of the condition on PI 3.2.3 had been met, therefore this PI was rescored, and the condition was closed. During the 3rd surveillance audit the team concluded that the requirements of the condition on PI 1.2.2 had been met, therefore this PI was rescored, and the condition was closed.

3.3 Summary of audit findings

Summary of conditions

Condition number	Condition	Performance Indicator	PI original score*	PI revised score
1	The client shall ensure by the fourth surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	1.2.1 (f) Harvest strategy	**75**	**95** (Closed at surveillance 4)
2	The client shall ensure by year 5 that there are well defined HCRs in place that ensure that the exploitation rate is reduced as the PRI is approached and they are expected to keep the stock fluctuating around a target level consistent with (or above) MSY.	1.2.2 (a) Harvest control rules and tools	**75**	**80** (Closed at surveillance 3)
3	The client shall ensure by the fourth surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of main secondary species and evidence shall be presented to show that they are implemented as appropriate.	2.2.2 (e) Secondary species management	**75**	**95** (Closed at surveillance 4)
4	The client shall ensure by the fourth surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of ETP species and evidence shall be presented to show that they are implemented as appropriate.	2.3.2 (e) ETP Species management	**70**	**85** (Closed at surveillance 4)

Summary of conditions				
Condition number	**Condition**	**Performance Indicator**	**PI original score***	**PI revised score**
5	The client shall ensure by the second surveillance audit that: • There are established decision- making processes that result in measures and strategies to achieve the fishery specific objectives. • Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. • Information on the fishery's performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	3.2.2 (a, b, d) Decision making-processes	**65**	**85** (Closed at surveillance 1)
6	The client shall ensure by the fourth surveillance audit that the monitoring, control, and surveillance (MCS) system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	3.2.3 (a) Compliance and enforcement	**75**	**80** (Closed at surveillance 2)
7	The client shall ensure by the third surveillance audit that the fishery-specific management system is subject to regular internal and occasional external review.	3.2.4 (b) Monitoring and management performance evaluation PI	**70**	**80** (Closed at surveillance 1)

For Principle 1 only one condition in PI 1.2.1 was closed during this audit and the PI was rescored. Updated overall score for Principle 1 is presented below. For Principle 2 the two remaining conditions were closed during this audit and PIs 2.2.2 and 2.3.2 were rescored. Updated overall score for Principle 2 is presented below. For Principle 3 no remaining conditions were opened at this fourth surveillance audit and therefore the scoring remains the same.

Overall weighted Principle-level scores	**UoA1**
Principle 1 - Target species	**91.7**
Principle 2 - Ecosystem	**87.3**
Principle 3 - Management	**91.5**

3.4 Updated certification status

Following this audit, Global Trust has determined that the Chilean Jack mackerel industrial purse seine fishery continues to meet applicable MSC requirements such that continued certification is appropriate; therefore, the certification status of the fishery as certified remains unchanged.

Updated certification status = CERTIFIED.

4. Report details

4.1 Surveillance information

Table 2. Surveillance announcement.

1	Fishery name	
	Chilean Jack mackerel industrial purse seine fishery/ Pesquería de cerco industrial del Jurel en Chile	
2	Unit(s) of Assessment (UoA)	
	Units of Assessment (UoA)	
	Species:	*Trachurus murphyi*
	Common name(s):	Jack Mackerel Jurel
	Stock(s):	Chilean EEZ (Regions III-X & XIV) and international waters Stock presente entre las regiones III-X & XIV de Chile y aguas adyacentes internacionales
	Geographical Areas:	FAO 87, Pacific Southeast /FAO 87 Oceano Pacífico Suroeste
	Fishing methods:	Purse seine / Cerco
	Management System:	Management Entities involved in this stock: Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA), Fisheries Development Institute (IFOP), Ministry of Production - Peru (PRODUCE), South Pacific Regional Fisheries Management Organization (SPRFMO), Vice Ministry of Aquaculture and Fisheries of Ecuador (MPCEIP)/ Intituciones involucradas en la gestión de este stock: Subsecretaria de Pesca de Chile (SUBPESCA), Instituto de Fomento Pesquero (IFOP), MInisterio de la producción de Perú (PRODUCE), Organización Regional de Ordenación Pesquera del Pacífico Sur (OROP-PS) y Ministerio de Producción de Comercio Exterior de Ecuador (MPCEIP)
	Client Group and other eligible fishers*:	SONAPESCA and other eligible fishers defined as Chilean industrial purse seiners licensed to fish Chilean jack mackerel in regions III-X and XIV and international waters SONAPESCA y otros Pescadores elegibles que posean licencia para pescar jurel en las regiones III-X y XIV así como en aguas internacionales adyascentes.
3	Date certified	Date of expiry
	26/04/2019	24/10/2024
4	Audit type and number	
	Surveillance Year 4 Auditoria de vigilancia del año 4	
5	Surveillance level	
	Surveillance level 3, off-site surveillance audit. The surveillance programme for this fishery has changed from that previously indicated in the PCR and it was already updated in the surveillance audit Year 3.	

Table 2. Surveillance announcement.	
	Nivel de vigilancia 3, auditoría de vigilancia fuera del sitio. El programa de vigilancia de esta pesquería ha cambiado con respecto al indicado anteriormente en el PCR y fue actualizado en la auditoria de vigilancia correspondiente al año 3.
6	Proposed team leader
	Dr. Virginia Polonio (Team Lead, P2 Assessor for habitats and Ecosystems and Traceability) Virginia meets the Fishery Team Leader Qualification and Competency Criteria outlined in MSC FCP v.2.3, Annex PC, Table PC1 as she has: ▪ A degree in a relevant subject. ▪ +3 years' fisheries experience. ▪ Reviewed any updates to the MSC Fisheries Program Documents at least annually. ▪ Passed MSC's fishery team leader training within the last 5 years as well as new versions of online training modules where relevant. ▪ Passed an appropriate ISO Lead Auditor training course as required by MSC requirements Dr. Virginia Polonio serves as the lead assessor and project manager with primary responsibilities for P2 and Traceability. She holds a B.Sc. in Environmental Sciences and an M.Sc. in Fisheries Management and Aquaculture, both from the University of Cádiz. Additionally, she obtained her PhD in Biodiversity and Natural Resources from the University of Oviedo, during which she gained valuable experience in fisheries management research and the protection of Vulnerable Marine Ecosystems, such as coral reefs. Throughout her doctoral studies, Virginia authored several articles describing new coral species and honed her skills in benthic ecology and ecosystem management. Prior to pursuing her PhD, she worked as a technician at the Spanish Oceanographic Institute, where she conducted sea-based research and gained practical experience in assessing fisheries stocks. Notably, she contributed to the Spanish National Basic Plan of Data, collecting and evaluating fishing data in the ICES and CECAF areas. During this time, she conducted feeding habit and age/size studies on various commercial species (such as hake, anchovy, sharks, mackerel, and squid) to promote an ecosystem-based approach to commercial fisheries in the Gulf of Cádiz and the Strait of Gibraltar. Virginia brings extensive expertise to MSC assessments, having served as both a team member and lead assessor on numerous full assessments, including ISF Capelin, ISF Mackerel, CSHMAC herring, Cantabrian sardine, North Atlantic albacore, squat lobster, blue sharks, swordfish, and Chilean Austral hake, among others. Currently, she works as an independent consultant through her new company, Vekamar Sustainable Fisheries Consulting. Virginia does not have any conflicts of interest in relation to the fishery under assessment; a summary of her CV is provided in Appendix 1. Virginia will be off-site during this assessment. Dra. Virginia Polonio se desempeña como asesora principal, gerente de proyectos y responsable principal de P2 y trazabilidad. Virginia posee una titulación superior en Ciencias Ambientales y un máster en Gestión Pesquera y Acuicultura, ambos otorgados por la Universidad de Cádiz. Asimismo, completó su doctorado en Biodiversidad y Recursos Naturales en la Universidad de Oviedo, durante el cual adquirió experiencia en investigación y gestión pesquera, con un enfoque particular en la protección de Ecosistemas Marinos Vulnerables, como los arrecifes de coral. Durante su tesis, Virginia redactó varios artículos describiendo nuevas especies de corales y desarrolló habilidades en ecología bentónica y gestión de ecosistemas vulnerables. Antes de comenzar su doctorado, trabajó como técnica de laboratorio en el Instituto Español de Oceanografía, donde llevó a cabo trabajos en el mar a bordo de buques pesqueros y oceanográficos, adquiriendo experiencia en la evaluación de poblaciones de peces. Participó en la recopilación y evaluación del Plan Nacional

Table 2. Surveillance announcement.	
	de Datos Básicos de España para las áreas CIEM y CECAF. Durante este período, realizó estudios de hábitos alimentarios y edad/tamaño del *Pagellus Bogaraveo* y otras especies comerciales como merluza, anchoa, tiburones, caballa y calamar, entre otras, para implementar un enfoque ecosistémico en la pesca comercial en el Golfo de Cádiz y el estrecho de Gibraltar. Virginia cuenta con una amplia experiencia en evaluaciones y pre-evaluaciones de MSC, tanto como miembro del equipo como asesora principal. Ha participado en numerosas evaluaciones en los últimos años, incluyendo ISF Capelin, ISF Mackerel, ISF Cod, ISF Haddock, CSHMAC herring, sardina cantábrica, atún blanco del Atlántico Norte, múnida chilena, tiburones azules y pez espada, así como diferentes pescas de atún. Virginia no tiene conflicto de intereses en relación con la pesquería en evaluación. En el Apéndice 1 se proporciona un resumen de su CV. Virginia estará remotamente durante esta evaluación
7	Proposed team members *[remove if not applicable]*
	Dr. Ivan meets Fishery Team Member Qualification and Competency Criteria outlined in MSC FCP v.2.3, Annex PC, Table PC2 as he has: ▪ A degree in a relevant subject. ▪ +3 years' fisheries experience. ▪ Reviewed any updates to the MSC Fisheries Program Documents at least annually. ▪ Passed MSC's fishery team member training within the last 5 years as well as new versions of online training modules where relevant. In addition, Ivan meets the Principle 1 and Current knowledge of the country, language and local fishery content components of the Fishery Team Qualification and Competency Criteria of Table PC3, he has: ▪ +3 years' experience in research into analysis for stock assessments, population dynamics, evaluation of management strategies for exploited populations, bioenergetics, ecosystem-based assessment, and ecological statistical analysis. Ivan does not have any conflicts of interest in relation to the fishery under assessment; a summary of his CV is provided in Appendix 1. Ivan will be off-site during this assessment. Ivan cumple con los criterios de competencia descritos en los requisitos de MSC Fishery Team Leader Qualification and Competency Criteria outlined in MSC FCP v.2.3, Annex PC, Table PC1 ya que tiene: ▪ Un título en una materia relevante. ▪ +3 años de experiencia en pesca. ▪ Actualizaciones de los documentos del programa de pesca del MSC al menos una vez al año. ▪ Pasó la capacitación de líder del equipo de pesca de MSC en los últimos 5 años, así como las nuevas versiones de los módulos de capacitación en línea cuando sea relevante. ▪ Aprobó un curso de capacitación de Auditor Líder ISO apropiado según lo requieren los requisitos de MSC. Con respecto a sus responsabilidades adicionales bajo el Principio 1, él tiene: ▪ +3 años de experiencia en investigación de análisis para evaluaciones de stock, dinámica de poblaciones, evaluación de estrategias de manejo para poblaciones explotadas, bioenergética, evaluación basada en ecosistemas y análisis estadístico ecológico Ivan no tiene conflicto de intereses en relación con la pesquería en evaluación. En el Apéndice 1 se proporciona un resumen de su CV. Ivan estará remotamente durante esta evaluación **Edith Saa (Team member Assessor Principle 3)**

Table 2. Surveillance announcement.	
	Edith meets Fishery Team Member Qualification and Competency Criteria outlined in MSC FCP v.2.3, Annex PC, Table PC2 as she has: ▪ A degree in a relevant subject. ▪ +3 years' fisheries experience. ▪ Reviewed any updates to the MSC Fisheries Program Documents at least annually. ▪ Passed MSC's fishery team member training within the last 5 years as well as new versions of online training modules where relevant. In addition, Edith meets the Principle 3 and Current knowledge of the country, language and local fishery content components of the Fishery Team Qualification and Competency Criteria of Table PC3, she has: ▪ +3 years' experience in governance and policies of fisheries as she has worked on Fisheries Development Division developing fisheries management regulations ▪ Knowledge of a common language spoken by clients and stakeholders. ▪ 2 assignments in the country or region in which the fishery under assessment is based in the last 10 years. Edith does not have any conflicts of interest in relation to the fishery under assessment; a summary of her CV is provided in Appendix 1. Edith will be off-site during this assessment. Edith cumple con los criterios de competencia ya que tiene los requisitos recogidos en Team Member Qualification and Competency Criteria outlined in MSC FCP v.2.3, Annex PC, Table PC2: ▪ Un título en una materia relevante. ▪ +3 años de experiencia en pesca. ▪ Actualizaciones correspondientes de los documentos del programa de pesca del MSC ▪ Aprobó la capacitación de los miembros del equipo de pesca de MSC en los últimos 5 años, así como las nuevas versiones de los módulos de capacitación en línea cuando ha sido relevante. Con respecto a sus responsabilidades adicionales bajo el Principio 3, ella tiene: ▪ +3 años de experiencia en gobernanza y políticas pesqueras, ya que ha trabajado en la División de Desarrollo Pesquero elaborando regulaciones de gestión pesquera. Edith no tiene conflicto de intereses en relación con la pesquería en evaluación. En el Apéndice 1 se proporciona un resumen de su CV. Edith estará remotamente durante esta evaluación **Ana Ayres (Team member Assessor Principle 2, primary , secondary and ETPs species)** Ana meets Fishery Team Member Qualification and Competency Criteria outlined in MSC FCP v.2.3, Annex PC, Table PC2.as she has: ▪ A degree in a relevant subject. ▪ +3 years' fisheries experience. ▪ Reviewed any updates to the MSC Fisheries Program Documents at least annually. ▪ Passed MSC's fishery team member training within the last 5 years as well as new versions of online training modules where relevant Ana holds a Master's degree in Environment and Marine Resources from the Universities of Bordeaux (France) and Southampton (United Kingdom). Ana worked as a Fisheries Consultant for the National Fisheries and Aquaculture Collective in Brazil, where she is responsible for the planning, development, and improvement of public fisheries policies. She also worked at the University of Southampton in mapping the benthic habitat of the Galapagos

Table 2. Surveillance announcement.	
	Islands with implications for the management of the marine reserve. Ana worked as a marine mammal observer in Portugal, monitoring cetacean populations. Ana has participated in numerous fisheries assessments in South America for Marin Trust and is qualified as a team member for MSC assessments. Ana has no conflict of interest regarding the fishery under evaluation. A summary of her CV is provided in Appendix 1. Ana will be participating remotely during this assessment. Ana cumple con los criterios de competencia ya que tiene los requisitos recogidos en Team Member Qualification and Competency Criteria outlined in MSC FCP v.2.3, Annex PC, Table PC2: ▪ Un título en una materia relevante. ▪ +3 años de experiencia en pesca. ▪ Actualizaciones correspondientes de los documentos del programa de pesca del MSC ▪ Aprobó la capacitación de los miembros del equipo de pesca de MSC en los últimos 5 años, así como las nuevas versiones de los módulos de capacitación en línea cuando ha sido relevante. Con respecto a sus responsabilidades adicionales bajo el Principio 3, ella tiene: Ana tiene un Máster en Medio Ambiente y Recursos Marinos por las Universidades de Bordeaux (Francia) y de Southampton (Reino Unido). Ana trabajó como Consultora de Pesca para el Colectivo Nacional de Pesca y Acuicultura en Brasil, donde tiene responsabilidades en la planificación, desarrollo y mejora de las políticas públicas pesqueras. También trabajó en la Universidad de Southampton en el mapeo del hábitat bentónico de las Islas Galápagos con implicaciones para el manejo de la reserva marina. Ana trabajó como observadora de mamíferos marinos en Portugal monitoreando poblaciones de cetáceos. Ana ha participado en numerosas evaluaciones de pesquerías de America del Sur de Marin Trust y está calificada como miembro del equipo para las evaluaciones del MSC. Ana no tiene conflicto de intereses en relación con la pesquería en evaluación. En el Apéndice 1 se proporciona un resumen de su CV. Ana estará remotamente durante esta evaluación
8	Audit/review time and location
	Surveillance activities will be conducted during the week of July 22nd 2024. As this is a remote audit, activities will be carried out from the assessment team's home offices. Las actividades relacionadas con la auditoria de vigilancia tendrán lugar durante la semana del 22 de Julio de 2024 de 2023. Debido a que será una auditoría remota, las actividades tendrán lugar desde las diferentes localidades donde se encuentren el equipo asesor.
9	Assessment and review activities
	During the audit, the team will review: – Any potential or actual changes in management systems. – Any changes or additions/deletions to regulations. – Any personnel changes in science, management or industry and their impact on the management of the fishery. – Any potential changes to scientific information, including stock assessments. – Any changes affecting traceability.

Table 2. Surveillance announcement.	
	– Any changes affecting harmonisation of overlapping fisheries The team will also evaluate progress against any open conditions, and if necessary, to close a condition(s)whose deadline becomes due at this surveillance audit, rescore the relevant Performance Indicator(s). Durante la evaluación, el equipo revisará: - Cualquier cambio potencial o real en los sistemas de gestión. - Cualquier cambio o adición / supresión de la normativa. - Cualquier cambio en el personal científico, manejo o industria y su impacto en el manejo de la pesquería. - Cualquier cambio potencial en la información científica, incluidas las evaluaciones de stock. - Cualquier cambio que afecte a la trazabilidad. - Cualquier cambio que afecte la armonización de pesquerías superpuestas, ver PB1.3.5 El equipo también evaluará el progreso frente a cualquier condición abierta y, si es necesario, para cerrar una condición cuyo plazo venza en esta auditoría de vigilancia, volverá a puntuar los indicadores de desempeño relevantes.
10	Stakeholder opportunities
	As part of this surveillance audit, the following stakeholder opportunities are available: ▪ Stakeholders may submit written input using the 'MSC Template for Stakeholder Input into Fishery Assessments' which is available here: https://www.msc.org/what-you-can-do/engage-with-a-fishery-assessment. ▪ Stakeholders may consult directly with the audit team during the period specified in the 8. Audit/review time and location above. Further information on Stakeholder input opportunities is provided in 3. Stakeholder Input into Fishery Surveillance Audits opportunities below. Como parte de esta auditoría de vigilancia, se encuentran disponibles las siguientes opciones para las partes interesadas: – Las partes interesadas pueden enviar comentarios por escrito utilizando la 'Plantilla MSC para la participación de los interesados en evaluaciones pesqueras' que está disponible en el siguiente enlace: https://www.msc.org/what-you-can-do/engage-with-a-fishery-assessment. – Las partes interesadas pueden consultar directamente con el equipo asesor durante el período especificado en el apartado 8. Fecha y ubicación de auditoria. Se puede encontrar mas infomración sobre las opciones de las partes interesadas en el apartado 3. Oportunidades de participación de las partes interesadas en las auditorías de vigilancia pesquera a continuación.

4.2 Version details

Table 3. Fisheries program document versions.

Document/Assessment Tree	Version Number
MSC Fisheries Certification Process (FCP) and Guidance	2.3
MSC Fisheries Standard and Guidance	2.01
Assessment Tree	*Default*
MSC General Certification Requirements (GCR)	2.6
MSC Reporting Template	2.2

4.3 Update on the fishery for the surveillance audit 4

4.3.1 Principle 1 Updates

4.3.1.1 Composition of the Fleet

During the 2016-2019 period, it is observed that the industrial purse seine fleet that operated in the Jack mackerel fishery has been deployed both in the SPRFMO area and in the Chilean EEZ; while from 2020 until May of 2023, Jack mackerel fishing operations have been concentrated exclusively within the Chilean EEZ. Thus, the number of vessels that operated within the SPRFMO area during 2019 was reduced by 60% compared to 2016 (Table 4).

Until May 2023, 44 fishing vessels were operating, which represents a decrease of around 39% of the fleet compared to 2019 and 49% compared to 2016 (Table 5). This reconfiguration in the composition of the Chilean fishing fleet is mainly explained by a lower participation of vessels with a hold capacity of less than 600 m3 as of 2019; while the number of vessels larger than 900 m3 has remained stable during the same period.

Table 4. Number of industrial purse seine vessels catching Jack mackerel in the Chilean EEZ and the SPRFMO (combined) area between 2016 and May 2023. Data were assembled by year and hold capacity (2023* preliminary data; Source: SPRFMO, 2023a).

Hold capacity (m^3)	2016	2017	2018	2019	2020	2021	2022	2023*
0 ≤ 300	3	0	0	0	0	0	0	0
300 ≤ 600	57	57	46	42	42	27	23	18
600 ≤ 900	7	5	5	7	6	5	4	3
900 ≤ 1,200	1	2	1	1	1	1	1	1
1,200 ≤ 1,500	6	8	7	8	8	8	8	8
1,500 ≤ 1,800	9	9	9	10	10	10	10	10
1,800 ≤ 2,100	4	4	4	4	4	4	4	4
TOTAL	**87**	**85**	**72**	**72**	**71**	**55**	**50**	**44**

Table 5. Number of industrial purse seine vessels catching Jack mackerel in the SPRFMO area between 2016 and May 2023. Data were assembled by year and hold capacity (2023* are preliminary data; Source: SPRFMO 2023a).

Hold capacity (m^3)	2016	2017	2018	2019	2020	2021	2022	2023*
0 ≤ 300	0	0	0	0	0	0	0	0
300 ≤ 600	0	0	0	0	0	0	0	0
600 ≤ 900	1	0	0	0	0	0	0	0
900 ≤ 1,200	0	1	0	0	0	0	0	0
1,200 ≤ 1,500	0	0	1	0	0	0	0	0
1,500 ≤ 1,800	2	2	0	2	0	0	0	0
1,800 ≤ 2,100	2	0	1	0	0	0	0	0
TOTAL	**5**	**3**	**2**	**2**	**0**	**0**	**0**	**0**

4.3.1.2 Catches, Seasonality of Catches, Fishing Grounds

During the 2013-2022 period, an increase in Jack mackerel catches has been observed, with a maximum reached in 2022 (Figure 1). This trend is explained by the increase of the quota allocated to Chile and the completeness of its extraction, plus transferences of quota from other SPRFMO members to Chile. Thus, until May 2023, 554,236 metric tons of Jack mackerel have been caught in the Chilean EEZ, which corresponds to 77% of the national TAC. It is highlighted that as of 2020, the catches of Jack mackerel come entirely from the Chilean EEZ.

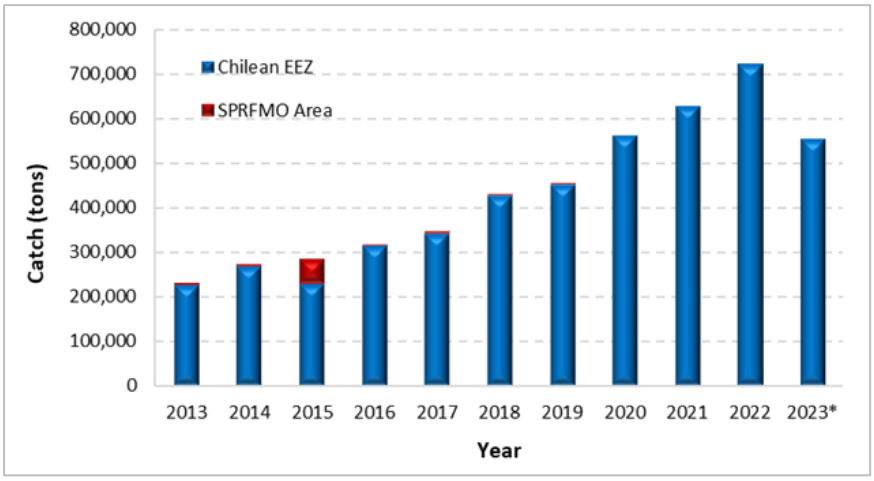

Figure 1. Total annual Jack mackerel catch within the Chilean EEZ and the SPRFMO area for the period 2013 – May 2023 (Source: SPRFMO, 2023a).

Seasonality of Catches

The largest catches of Jack mackerel for the 2018-2022 period have been recorded in the first half of each year (80% on average). Thus, until May 2023, catches reached 554,236 tons within the Chilean EEZ, representing 77% of the national TAC (Figure 2).

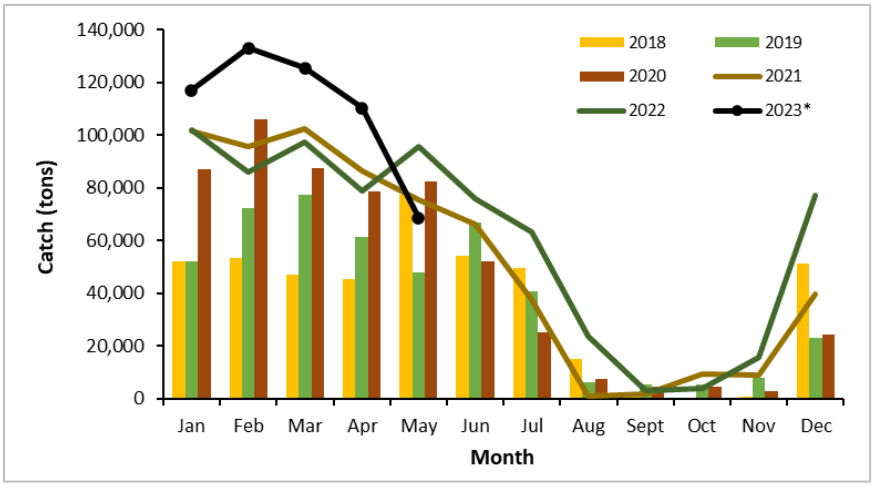

Figure 2. Seasonality of the Jack mackerel catches by the purse-seine fleet for the period 2018 - May 2023 (Source: SPRFMO, 2023a).

Spatial Distribution of Catches

Since 2020, the spatial distribution of the Jack mackerel catches in the center-south zone of Chile have been concentrated near the coast, within 100 nm. Likewise, in the northern part of the country the captures of this resource have also been concentrated near the coast, on average within the first 50 nm, initially associated

with the operation of the fleet directed to anchovy, transiting to target fishing of Jack mackerel towards the most recent years (Figure 3).

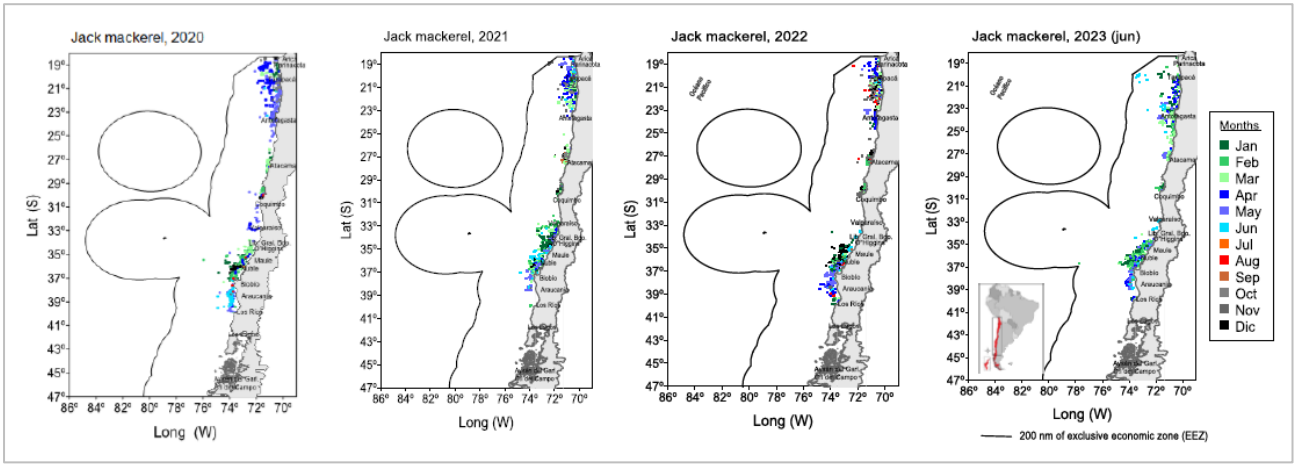

Figure 3. Spatial-temporal distribution of the industrial purse seine fleet targeting Jack mackerel for the 2020-2022 and Jun 2023 period (Source: SPRFMO, 2023a).

Effort and CPUE for Jack mackerel fishery

The information in this chapter refers to the fleet targeting Jack mackerel that operates in the center south zone of the country. Catches, effort and CPUE were calculated for each trip where Jack mackerel represented over 50% of the total catch's species composition.

Until 2010, an increasing trend in the average length of the fishing trips has been observed (Figure 4), which is explained by the distances of the Jack mackerel's fishing grounds from the coast. Later, during 2012 and 2013, the catches were concentrated within the Chilean EEZ, condition that reduced considerably the average length of the fishing trips by 50%. In 2015, the catches were again obtained outside the Chilean EEZ, increasing the average length of the fishing trips to around 7 days. For the period 2016 to May 2023, the total number of fishing trips showed an upward fluctuation, while the average length of fishing trips showed a downward trend and a relative stability towards the end of the series, because catches have concentrated near the coast, within the first 150 nm.

Regarding the standardized CPUE, measured as the rate of use of the fleet's carrying capacity (catch / (hold capacity displaced x length of fishing trip)), it has shown a decreasing trend between 2001 and 2011. Subsequently, in 2012, this indicator changed this trend, increasing over time. This condition is explained by a decrease in the average length of the fishing trips, as a result of changes in the spatial distribution of the resource (Figure 5a). This trend has continued (Figure 5b), and has become more evident in recent years, when a reduction in the number of vessels operating has been associated to an increase in both fishing yields and total landings.

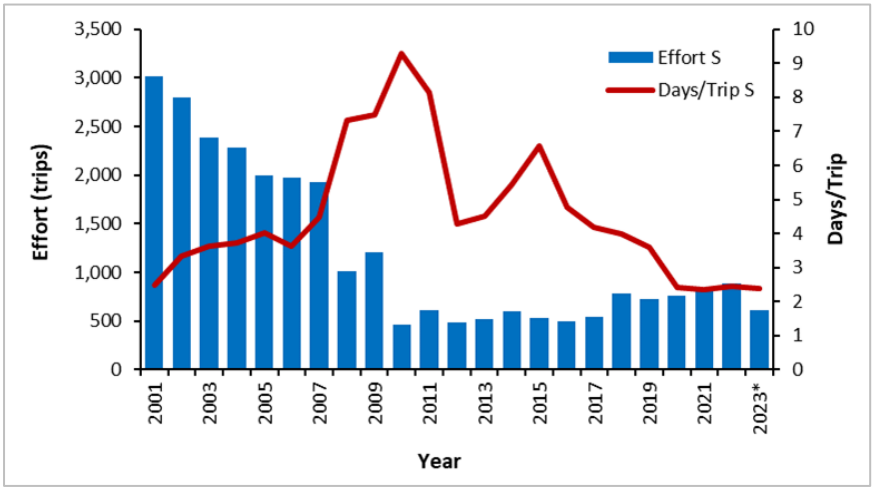

Figure 4. Effort in number of fishing trips with catch (blue), and length of fishing trips in days (red) for the purse seine fleet in the center-southern zone targeting Jack mackerel, period 2002 to May 2023 (preliminary; Source: SPRFMO 2023a).

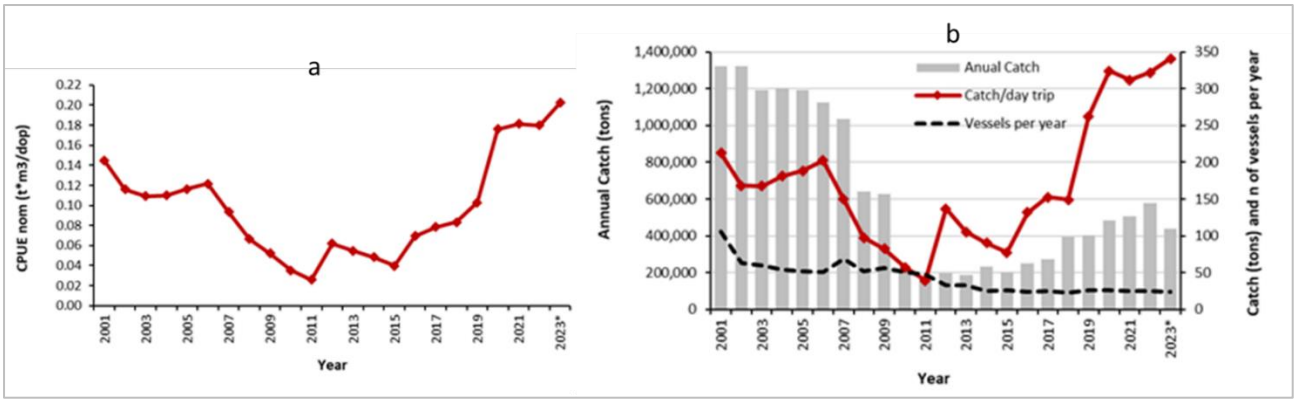

Figure 5a) Nominal CPUE for the purse seine fleet in the center-southern zone targeting Jack mackerels and, b) Total catch per year (grey bars), catch per day of fishing trips (red line) and number of vessels with catch of Jack mackerel for the purse seine fleet in the center-southern zone, period 2001 to May 2023 (preliminary; Source: SPRFMO, 2023a).

Biological sampling, length and age composition of the catch

The biological information for Jack mackerel and its associated species is obtained on a regular basis from samples collected along the Chilean coast. Sampling is conducted on a daily basis, mainly at landing sites and processing plants and is also complemented with information gathered by scientific observers onboard fishing vessels. The information collected includes fork length measurements, otolith collection, total weight, gutted weight, gonad weight, and sex and maturity stages.

In 2022, a total of 64,580 specimens of Jack mackerel were sampled of which 18,559 were used to collect biological samples. For the industrial fleet, samples included at-sea sampling as well as port sampling, covering the entire range of activities reported for this fishery in Chile. The main landing ports were Antofagasta and Coquimbo in the northern area and, Talcahuano and Valdivia in the center-south area of the fishery.

Length and age composition of the catches

Since 2016, size-structured catches of Jack mackerel have shown a wide range of sizes, between 8 and 67 FL cm, with main modes fluctuating between 26 and 41 FL cm, and with larger values towards the end of the series (Figure 6).

During the first semester of 2023, the size-structured catch of Jack mackerel has ranged from 8 to 66 cm in FL, with a main mode of 37 cm in FL, and a low participation of immature individuals in catches, since operations in the northern part of the country have fluctuated in individuals around a main mode centered on 40 FL cm.

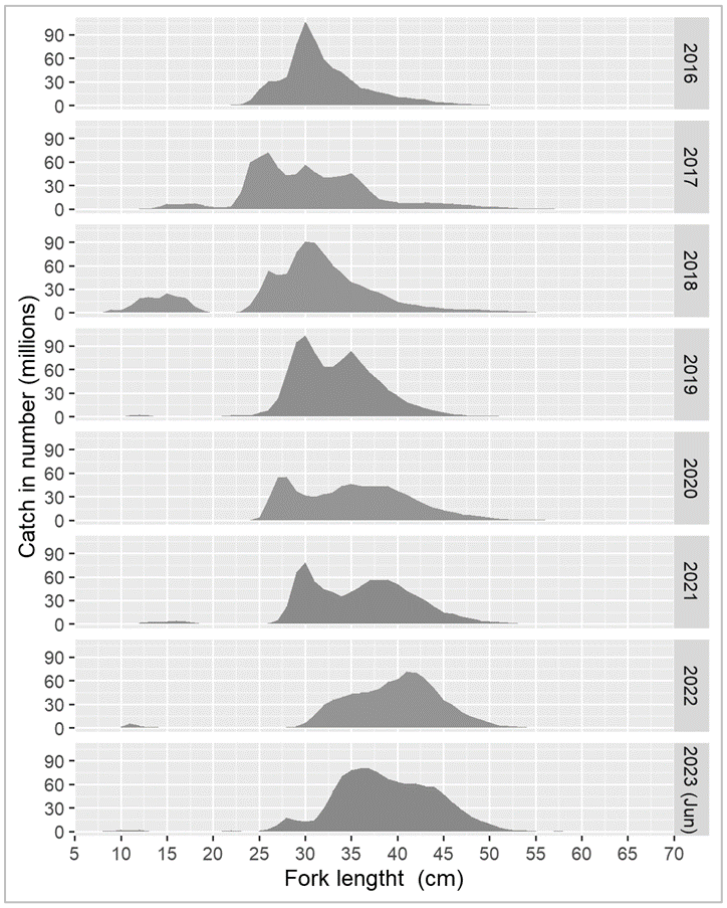

Figure 6. Length structure of Jack mackerel's catches for the period 2016 - June 2023 (Source: SPRFMO, 2023a).

Since 2011, age-structured Jack mackerel catches according to the new age group allocation criteria have shown a wide range of ages, with main modes fluctuating between age groups I to IV in the period 2011-2018. Then, starting in 2019, the main mode of catches shifted to age group V (Figure 7).

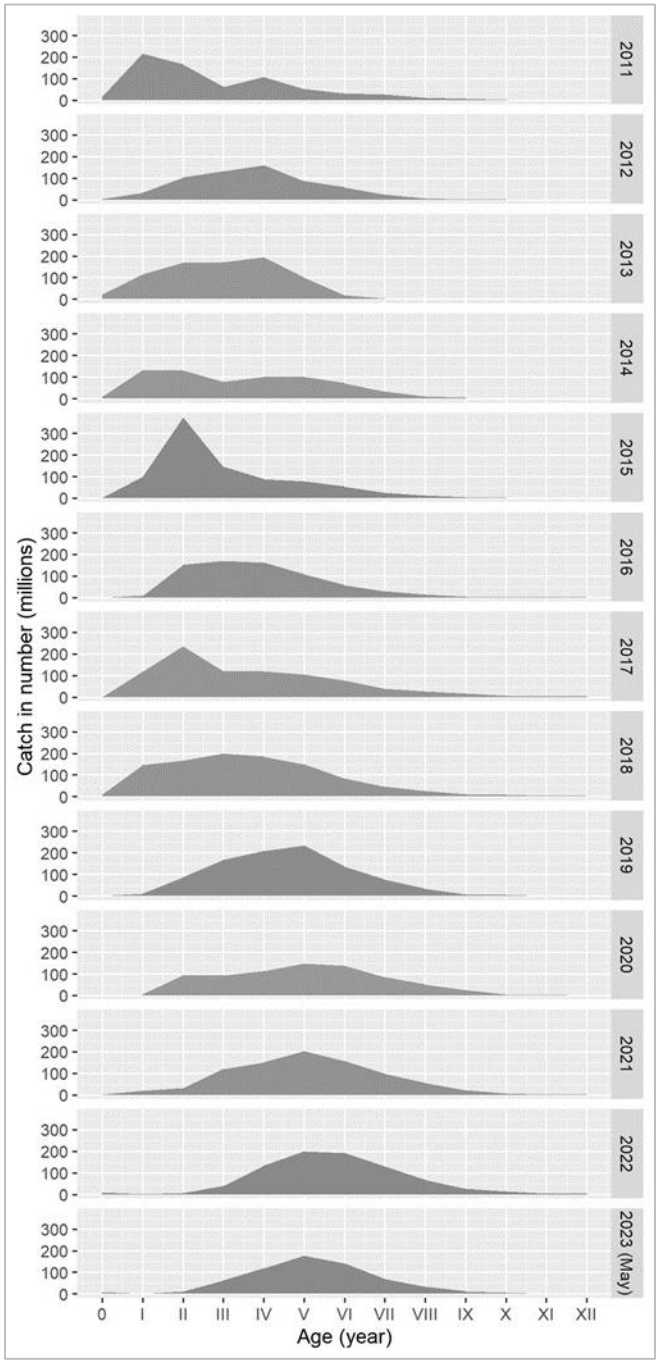

Figure 7. Catch age-structured in number of Jack mackerel (using the new age assignment criteria), period 2011 to May 2023 (Source: SPRFMO, 2023a).

4.3.1.3 Stock Assessment

Chilean Jack mackerel *Trachurus murphyi* was most recently assessed in 2023 as part of the 11th annual SPRFMO Scientific Committee meeting. The stock assessment followed from a benchmark workshop SPRFMO_SCW14. 2022. During the SW14 benchmark, scientists from around the globe met to review the input data, evaluate and revise the assessment model, and develop and interpret model diagnostics to provide guidance on the best available science for the updated stock assessment (SPRFMO, 2023b).

The assessment was produced using the Joint Jack Mackerel (JJM) statistical catch-at-age model. This model was adopted as the assessment method in 2010. The Joint Jack Mackerel model (JJM) used by the SC to assess Jack mackerel stocks, recognizes four distinct fleets (Table 6). Fleet 1 is a coastal purse seine fishery in northern Chile. Fleet 2 is a purse seine fishery in central-south Chile that extends into the high seas. Fleet 3 combines the far-north coastal purse seine fisheries occurring in the EEZs and Territorial waters of Ecuador and Perú. Finally, Fleet 4 corresponds to the offshore trawl fleet operating solely in the SPRFMO Area (SPRFMO, 2023b).

Description of the model

The JJM (Joint Jack mackerel Assessment Model) is an explicit age-structured model that uses maximum likelihood for the estimation of key parameters that modulate the population dynamics of Jack mackerel in the SPRFMO convention area.

The process of population dynamics is defined by the standard equation of capture with various modifications such as those described by Fournier and Archibald (1982), Hilborn and Walters (1992) and Schnute and Richards (1995). This model was adopted by the SPRFMO as a method of population evaluation of jack mackerel and has been used since 2010. Since the adoption of the JJM model, it has been improved and the most notable components have been the option to include size composition data and the ability to estimate natural mortality by age and time. With this versatility, the model is more flexible and allows the use of catches in age or size for varied fleets and explicitly incorporate regime changes in the productivity of the population. The model consists of 4 components: (i) population dynamics, (ii) farm dynamics, (iii) observational models for the data, and (iv) the parameter estimation procedure.

Population dynamics assume that recruitments occur in January, while the spawning season is considered an instantaneous process in mid-November. Population age structures cover an age range between 1 and 12+ years and include a stochastic stock-recruit B-H ratio (Beverton and Holt, 1957). Mortality by age is composed of the sum of fishing mortalities by age-fleet and natural mortality, the latter assumed constant over time and between ages. The model is aggregated spatially even though the fisheries are geographically distinct. The initial population is based on an equilibrium condition and occurs in 1958 (12 years before the start of the model in 1970).

The dynamics of exploitation consider the interaction of fleets with the population through fishing mortality. Fishing mortality is assumed to be an aggregate of several separable fleet selectivity processes, which describe the specific age pattern of fishing mortality, catchability that scales fishing effort units to fishing mortality, and effort deviations, which are a random effect on fishing effort in relation to mortality. Selectivity is non-parametric specific by fishing fleet and time-variant. Catchability is fixed for each series of indices, however, some variations over time have been considered in some of these (e.g., acoustic biomass of Perú and Chile (south) and the CPUE of southern Chile).

The observational model distinguishes four data components that contribute to the total likelihood function: fleet catch data, age frequency data, size frequency data, and abundance indices. The observed total catch data is assumed to be unbiased and relatively accurate with a residue CV of 0.05. The probability distributions for the proportions of age and height frequency are assumed to be distributed multinomially. Sample sizes are

specific to each fleet, but constant for years. For catches per fishery (4) and abundance indices (9) the log-normality assumption with constant CV but different per fishery is used.

Table 6. Years and types of information used in the JJM assessment models.

Fleet	Catch-at-age	Catch-at-length	Landings	CPUE	Acoustic	DEPM
1 North Chile purse seine	1980-2023	-	1970-2023	-	Index: 1984-1988; 1991; 2006-2021, 2023 Age comps: 2006-2007, 2009; 2013-2021, 2023	-
2 South-central Chile purse seine	1980-2023	-	1970-2023	1983-2023	1997-2009 Age comps: 2001-2009	Index: 1999-2001; 2003-2008 Age comps: 2001; 2003-2006, 2008
3 FarNorth	-	1980-2023	1970-2023	2002-2023	1985-2008; 2010-2013	-
4 International trawl off Chile	2015-2023	2015-2023*	1970-2023	China, EU, Korea, Russia, & Vanuatu (2008-2022)	-	-

*) Are converted to age using age-length keys of central-southern area off Chile, the EU, and Russia.

The parameters of the model are estimated by maximizing the log-likelihood of the data together with the a priori probabilities together with the penalties. The estimation is done in a series of phases, the first of which uses arbitrary starting values for most parameters. The model has been implemented in ADMB language, the characteristics of which can be consulted in Fournier *et al*. (2012).
The most notable general characteristics of the model are the following:

- All indices are assumptions proportional to biomass.
- The selectivities of each fleet are variable by year and age.
- The size compositions of Fleet 3 are modeled considering the growth parameters of jack mackerel in Perú.
- The steepness of the stock-to-recruit ratio is set h=0.65 and the standard error of the S/R ratio is assumed to be σR=0.6.

To update the stock assessment, the technical agreements made in 2022 at the SPRFMO benchmark workshop (SPRFMO_SCW14. 2022) were used, which correspond to:
A. Age composition of fisheries and research cruises.

- New age compositions for Chilean fleets (Central, South and North) based on the new age assignment criteria. New weights by age were also used in the catch information.
- New age compositions for the offshore fleet, partly taking into account the new Chilean age-length keys (ALK), with truncation of the time series to 2015-2020.
- Data from EU "self-sampling" were included.
- The two age compositions of Chilean acoustic studies based on the new age assignment criterion.
- The weighting of the data on the MPH cruises in Chile was strongly lowered because the new age assignment criterion has not yet been applied to these data.

B. Research cruise data and CPUE-based indexes.

- A progressive increase in the efficiency of fishing effort called "effort creep" has been applied to the standardized CPUE series. For the offshore fleet, a 2.5% effort creep was applied based on Rousseau *et al*. (2019). For the Chilean and Peruvian fleets, 1.0% was used as an interim initial value. However, this will depend on further revisions before the next SC meetings.
- The CVs of the index data were evaluated and reviewed, and the values were chosen based on expert opinion.

C. Natural mortality

- A value of 0.28 was established for all ages and all years for the single stock model and for the southern stock of the two-stock model. The value was derived from the mode of M-values estimated with multiple methods using a natural mortality toolbox.

D. Maturity

- Maturity vector by age of SCW14-WD04_2022, estimated using Jack mackerel data in Chile between September 2011 and January 2012 using the new age assignment criteria for the single-stock model and for the southern stock of the two-unit stock model.

E. Weights at the age of the stock.

- A weight-for-age vector derived from the average weight-for-age catch of Chilean fleets during the fourth quarter between 1995 and the current year, for the single-stock model, and for the southern stock in the two-stock model.

F. Weighting of compositions by age

- Justification of why iterative reweighting has been carried out.
- Francis (2011) weights of the effective sample size for age compositions have been derived for the single-stock model. These weights will remain constant until a future benchmark is made. The same will also apply weights in the two-stock model.

G. Productivity regimes.

- Schemes for the calculation of reference points.
- Schemes for calculating the phase of low recruitment.
- Average recruitment in a short period (2001-2015 due to the change in age assignment that affected the period of low recruitment).
- Low (0.65) and high (0.8) values of the slope ("steepness") to estimate the state of the stock.
- Only the lowest value of steepness = 0.65 for the estimation of F_MSY.

H. Reference Points

- With a slope (h) set at 0.65, the workshop proposed that the SC consider using Blim (in units of biomass spawned from females) as a reference point defined as the biomass below which recruitment damage is likely to occur. Blim is estimated as the minimum of the ratio of spawning biomass (SSBt) to unexploited spawning biomass (SSB f=0, t, adjusted for stock-to-recruit ratio). The ratio estimated during the benchmark was 8% and this estimate seems robust to sensitivity analyses.
- The workshop recommended that the SC use BMSY (also expressed as reproductive biomass) as estimated and conditioned on variable growth that has changed slightly over time.
- F_MSY is also conditional on changes over time (including selectivity estimates).
- The final model (h1_1.07) used by SC11 was the same model used in SC10 updated with data up to 2023, and with two modifications: 1) updating the weights to the age of the Peruvian data, and 2) halving the weighting of the last year of the offshore fleet abundance index.

To carry out the biomass and catch projections, the procedures agreed in 2022 at the SPRFMO benchmark workshop were applied:

A. To use a slope of the stock-to-recruit ratio (h) equal to 0.65.
B. The workshop concluded that, given the environmental conditions and uncertainty in recent recruitment peaks, advice on stock projections should be based on the current low-productivity regime. Therefore, the period over which low productivity is calculated (for the stock-recruit curve estimation) has been updated, due to the new age assignment criterion, and is now 2001-2015.

Equilibrium-based reference points are calculated within the JJM model. The model estimates values of MSY and FMSY using a Newton-Raphson minimization routine that finds the value of fishing mortality, given the terminal year relative catches (and selectivities-at-age) by fleet, and the terminal year weights-at-ages for each fleet, that maximizes catch. Since weights-at-age and “effective” selectivity change each year, these values

can vary. MSY is thus defined as the maximum amount of catch that allows the remaining stock to generate sufficient recruitment to maintain the population at the same level. BMSY is taken as the long-term average of biomass fished under MSY. Between 2013 and 2021, a provisional BMSY level of 5.5 million tons was instated based on an analyses executed at SC03. In SCW14_2022, the provisional management reference point for BMSY was revised to a ten-year average of the model-estimated BMSY. A limit reference point Blim (where B refers to spawning biomass) for the single-stock hypothesis was also developed during SCW14_2022. Blim was defined as the spawning biomass level below which recruitment would likely be impaired. As such, there should be no fishing when the current spawning biomass is estimated to be below Blim. For Jack mackerel, Blim was computed from the lowest ratio of historical spawning biomass relative to the most-recently-estimated unfished spawning biomass. In SCW14_2022, this ratio was estimated to be 8% of the unfished spawning biomass

Results

Figure 8 show a summary of the state of the Jack mackerel stock based on the levels and trends of spawning biomass, fishing mortality, recruitment and landings. The spawning biomass had a general downward trend from 1970 to 2012, with wide fluctuations that include the historical maximum of 20 million t in 1988, then from 2013 the trend reverses, reaching 16 million t in 2023, a value similar to that of 1991. The dynamically estimated spawning biomass in the MSY (blue line in Figure 8) remained relatively stable over the years between 5 and 6 million t.

Global fishing mortality rates (combined fleets) presented three historical peaks (1974, 1997, 2009) and a decreasing trend from 2009 to 2022, decreasing to values as low (0.01) as those estimated for the beginning of the eighties. The dynamically estimated F_MSY fluctuated over the years, reflecting changes in recruitments, landings, and changes in selectivity patterns. Since 2012, the F_MSY has had an increasing trend, reaching its maximum value in 2023.

In the annual fluctuations of recruitments, three periods were identified: 1) high recruitments in 1980-2000, with the historical maximum in 1986-1987, 2) low recruitments in the period 2003-2015, and 3) recruitments that increase in 2016-2018, reaching the second historical maximum in 2018, and then decrease in 2019-2023, resuming the low levels of the second period.

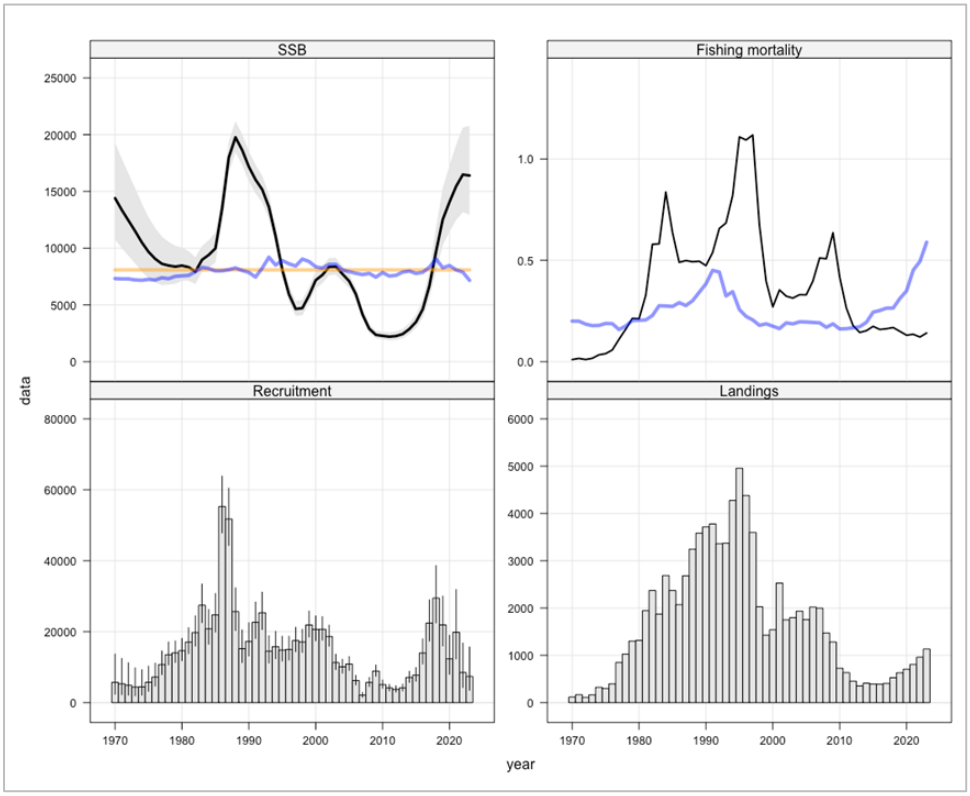

Figure 8. Model h1_1.07 (single-stock hypothesis) summary estimates over time showing spawning biomass (kt; top left), recruitment at age 1 (millions; lower left), total fishing mortality (top right), and total catch (kt; bottom right). Blue lines represent dynamic estimates of $BMSY$ (upper left) and dynamic estimates of $FMSY$ (upper right). The orange line represents the average $BMSY$ over the most recent ten years (Source: SPRFMO, 2023b).

Stock status

The exploitation condition of Jack mackerel is based on a system delineated by Biological Reference Points (BRPs) based on the MSY. This reference system allows the occurrence of overfishing (F > F_MSY), overexploitation (SB < SBMSY) and under exploitation (F < F_MSY and SB > SBSMY) to be represented in a graphical scheme (called the Kobe graph) (Figure 9). The exploitation status of Jack mackerel in the eastern South Pacific in 2023 is under exploited.

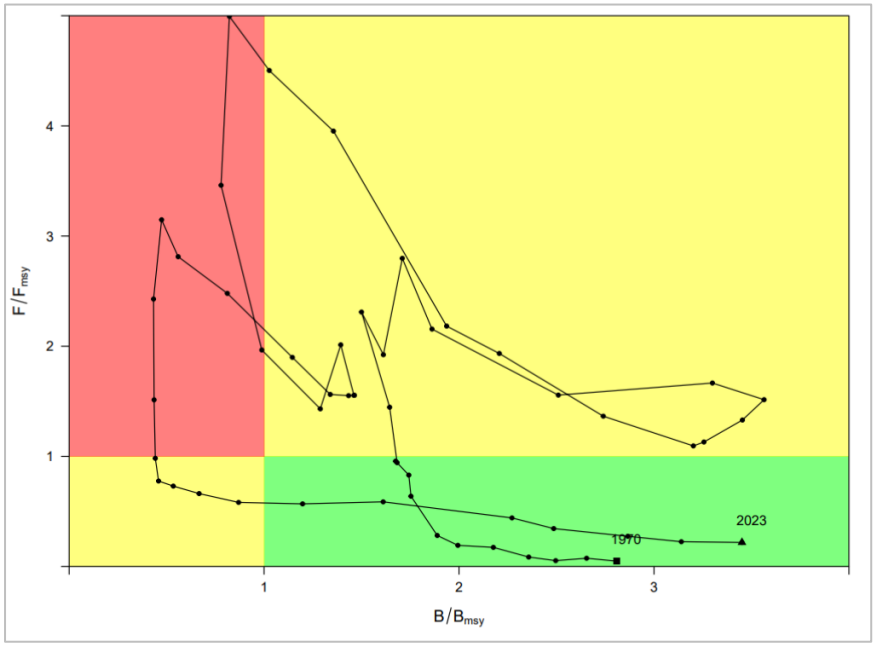

Figure 9. Stock status diagram ("Kobe plot"). F= Fishing Mortality, B= Spawning Biomass, MSY= Maximum Sustainable Yield (Source: SUBPESCA, 2024).

Stock projections

Projections of spawning biomass show that, if fishing were suspended, the stock would reach its initial biomass in 2043, while if the 2023 F is maintained, biomasses will decline to stabilize at 10 million t from 2035 (Figure 10). Increasing the F2023 by 25% or decreasing by 25% would not generate major impacts on the level of spawning biomass. The application of F_MSY would produce a sharp decrease in spawning biomass in the first 10 years of projection, to then stabilize at 5 million t, half of what would be produced with the F of 2023. On the other hand, when applying the F_MSY the 2024 catch would reach 4.9 million tonnes, then fall exponentially for approximately 5 years, and then stabilize at a level close to 1.2 million tonnes (Figure 11). These notable changes in the first years of the projection are due to the fact that the age structure of the stock in 2023 has a significant component of individuals that still have some time to grow in weight and contribute to biomass and catch, and that then when they recruit, and the projected recruitments enter (condition of low recruitments) the levels of these variables will be adjusted downwards

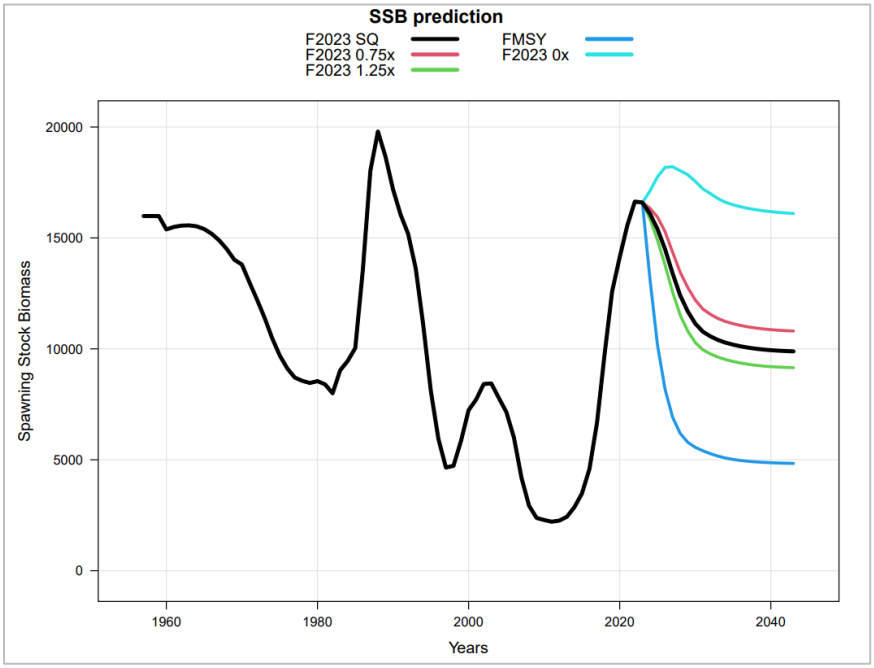

Figure 10. Projections of spawning biomass for the period 2024-2043, assuming low recruitments and applying a strategy of constant fishing mortalities over the years. Different levels of F are projected that are multiples (0.0, 0.75, 1 or SQ, 1.25) of F2023 and F=F_MSY (Source: Payá, 2024).

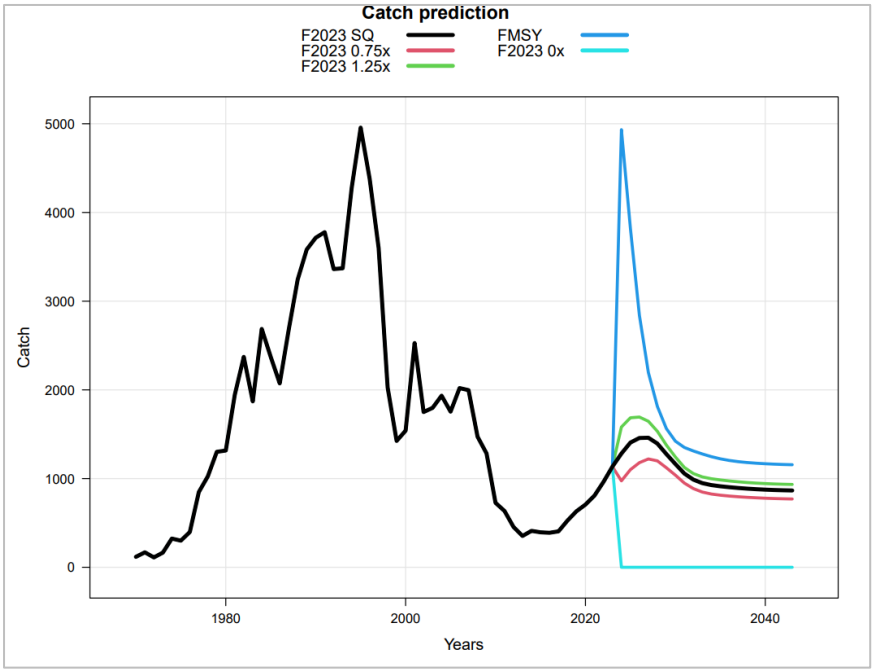

Figure 11. Projections of the total catch (in thousands of tonnes) for the period 2024-2043, assuming low recruitments and applying a strategy of constant fishing mortalities over the years. Different levels of F are projected that are multiples (0.0, 0.75, 1 or SQ, 1.25) of F2023 and F=FMSY (Source: Payá, 2024).

Advice

Catch with F_MSY for 2024 and with Harvest Control Rule with stabilization rule.

The total catch resulting from applying the F_MSY for 2024 was estimated at 4.9 million tonnes and for 2025 at 3.8 million tonnes (Table 7). In line with the "adjusted Annex K" rebuilding plan (SC2), catch advice relative to the previous year can only increase by a maximum of 15%. This results in advice of a 2024 catch level for Jack mackerel within the entire Jack mackerel range to be at or below 1,242,000t t. In all scenarios, high

probabilities were projected that the biomasses will be greater than the biomass in the MSY, except when the F_MSY is projected where the probabilities drop to 45% in 2029 and 40% in 2023, this is expected since, in the long term, the probability should be close to 50%, that is, close to the median.

Table 7. Scenarios of projections under different strategies of exploitation of mortality by constant fishing (first column). The catches are projected for the years 2024 and 2025 (C thousand t), the spawning biomasses for the years 2025, 2029 and 2033 (B in thousands of t) and the probabilities (P) that these biomasses will exceed B_MSY (Source: SPRFMO, 2023b)

Catch Scenario	Catch 2024 (kt)	Catch 2025 (kt)	B_{2025}	$P(B_{2025} > B_{MSY})$ %	B_{2029}	$P(B_{2029} > B_{MSY})$ %	B_{2033}	$P(B_{2033} > B_{MSY})$ %
F = 0	0	0	18415	100	20915	100	22109	100
$F = F_{2023}$	1280	1405	16058	100	14450	97	14537	94
$F = F_{MSY}$	4880	3807	10866	94	7766	45	7432	40
$F=F_{2023}$ x 0.75	973	1100	16594	100	15599	98	15756	96
$F=F_{2023}$ x 1.25	1579	1684	15551	100	13491	94	13539	91
$TAC = TAC_{2023}$	1080	1207	16255	100	12377	95	11013	83
$TAC = TAC_{2023}$ +15%	1242	1367	15470	100	11821	92	10515	79
$TAC = TAC_{2023}$+20%	1296	1419	15377	100	11646	91	10361	78

4.3.1.4 Inseparable or practicably inseparable (IPI) stock status

Pelagic fisheries, such as the Jack mackerel fishery, often deal with mixed stocks or bycatch from species that are hard to separate during the catch and landing processes.

For the Jack mackerel fishery in Chile, no specific IPI stocks have been identified in the available documentation. However, it's crucial to explain why this aspect has been considered by the assessment team. A brief justification for the absence of IPI stocks is given below:

1. Target Species Dominance: The Jack mackerel fishery in Chile primarily targets a single species, Trachurus murphyi, which dominates the catch. This reduces the likelihood of mixed catches or inseparable stocks at significant levels, compared to fisheries that target multiple species or have high bycatch rates.

2. Bycatch Minimization Measures: The fishery employs various bycatch reduction techniques, and any bycatch that does occur is typically managed separately. Hence, there are established procedures to handle non-target species, which helps to avoid inseparability concerns during processing.

3. Geographical and Seasonal Targeting: The fishery often operates in well-defined areas where Jack mackerel schools are dense, further reducing the likelihood of catching significant numbers of other pelagic species.

4. Previous Assessments: Past MSC certifications and sustainability evaluations for this fishery have typically focused on Jack mackerel alone, without identifying significant issues related to IPI stocks.

Therefore, while IPI stocks are a common issue in pelagic fisheries, the specific operational practices and ecological conditions of the Chilean Jack mackerel fishery appear to minimize or eliminate this concern. If future assessments uncover any significant inseparability issues with other species, they would be addressed in updated versions of this report after the site visit.

4.3.1.5 Total Allowable Catch (TAC) and catch data

Table 8. Total Allowable Catch (TAC) and catch data				
TAC	Year	2024	Amount	1, 135, 297t
UoA share of TAC	Year	2024	Amount	819,720t
Total catch by UoC	Year (most recent)	2023	Amount	667,838.298t
	Year (second most recent)	2022	Amount	578,287.208t

4.3.2 Principle 2 Updates

P2 Updates

UoA Catch composition

According to the latest report of the research and monitoring program on discards and bycatch in pelagic fisheries - 2022-2023, in the industrial fishery targeting Jack mackerel in the south-central coastal of Chile in 2022, the main bycatch identified were chub mackerel and Humbold squid (Figure 12) [Ossa et al., 2023]. In 330 hauls, a total catch of 621,362 tons of Jack mackerel was estimated, with a discard equivalent to 1.2% (7,445 tons). No discard was observed for chub mackerel, which was recorded in 13 hauls), for which a total catch of 1,155.7 tons was estimated (Table 9). The 108 tons of the Humbold squid caught was discarded.

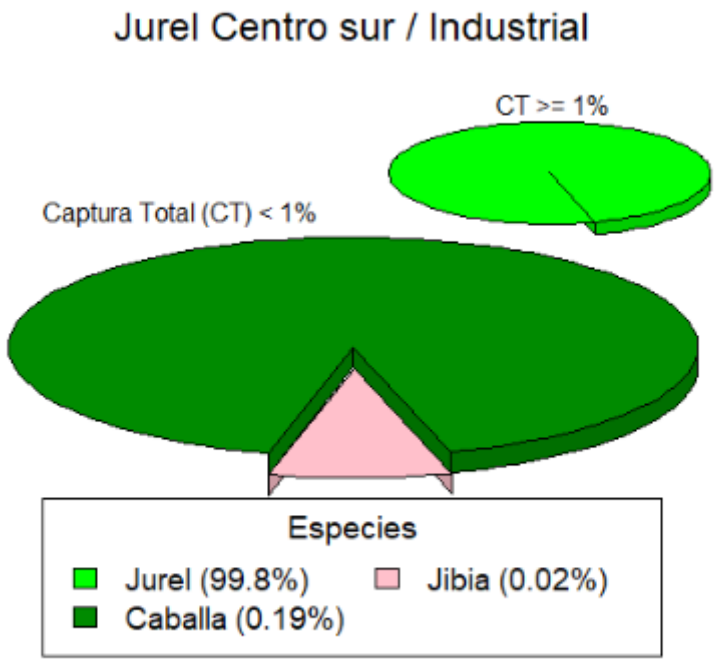

Figure 12. Estimated proportion of species in south-central fishery targeting Jack mackerel during 2022 (observer data). CT: total catch (Ossa *et al*., 2023).

Table 9. Estimates of total catch (CT), retained (CR) and discarded catch (CD) by species in the south-central zone, for the industrial Jack mackerel fishery during the year 2022. Estimates in tons with data from scientific

observers. LCP number: number of hauls with presence. The observer coverage of the fishery at the fishing trip level was 13.8% (Ossa *et al*., 2023).

Especie	CT	CV(CT)%	CR	CV(CR)%	CD	CV(CD)%	%CD	N° LCP
Jurel	621.361,8	4,0	613.916,6	4,0	7.445,1	77,6	1,2	329
Caballa	1.155,7	52,7	1.155,7	52,7	0,0	-	0,0	13
Jibia	108,4	92,8	0,0	-	108,4	108,6	100,0	1
TOTAL	**622.625,9**	**4,0**	**615.072,4**	**4,0**	**7.553,5**	**77,6**	**1,2**	**330***

* Número de lances con captura (no representa la suma de lances con presencia).

Another source of information, which also allows to know the diversity/composition of species present in the catches of the fishery, corresponds to the record of frequency of occurrence (%) of species in fishing hauls carried out by the observers on board, which refers to species that are detected in a haul (outside the sample of composition), but that are not weighted so this information is not used to estimate proportions. In the industrial Jack mackerel fishery with operation between Valparaíso and Los Lagos, and international waters, 17 species that accompanied Jack mackerel were identified. It stood out above or equal to 10% of occurrence in hauls, the species jellyfish, Humboldt squid and snoke (

Table 10).

Table 10. Faunal list and frequency of occurrence of species in hauls reported by observers on board vessels of the industrial Jack mackerel fishery with operation in the south-central zone in the Biobío regions during 2022. LCP: Hauls with presence; PDO: Proportion of occurrence (Ossa *et al*., 2023).

Flota	Región / lances	Nombre común	Nombre científico	LCP	PDO
Industrial	Biobío (362 lances observados)	Jurel	*Trachurus murphyi*	330	0,91
		Sierra	*Thyrsites atun*	119	0,33
		Jibia	*Dosidicus gigas*	113	0,31
		Medusa	Scyphozoa	106	0,29
		Caballa	*Scomber japonicus*	26	0,07
		Reineta	*Brama australis*	24	0,07
		Merluza común	*Merluccius gayi*	9	0,02
		Palometa o vidriola	*Seriola lalandi*	5	0,01
		Agujilla	*Scomberesox saurus*	4	0,01
		Anchoveta	*Engraulis ringens*	3	0,01
		Sardina común	*Strangomera bentincki*	2	0,01
		Pez medusa o cabezón azul	*Cubiceps caeruleus*	2	0,01
		Langostino colorado	*Pleuroncodes monodon*	1	0,00
		Corvina	*Cilus gilberti*	1	0,00
		Cojinoba azul	*Seriolella punctata*	1	0,00
		Congrio colorado	*Genypterus chilensis*	1	0,00
		Tiburón marrajo	*Isurus oxyrhinchus*	1	0,00
		Marrajo sardinero	*Lamna nasus*	1	0,00

Seabirds, mammals and reptiles interactions

During the audit in July 2024, IFOP provided data of catches and deaths of seabirds, marine mammals and turtles for the purse seine industrial fishery targeting Jack mackerel between 2017 and 2023 (Verga *et al*., 2024).

Research carried out by IFOP shows that marine mammals have been the most affected in this fishery, representing 87.4% of the catches (Table 11). They are followed by procellariform birds with 7.2% and coastal seabirds with 5.3%. The total incidental catch of marine mammals corresponds to the South American sea lion (

Table 12).

The main species of seabirds caught incidentally have been the sooty shearwater, the kelp gull, the Peruvian pelican and the Humboldt penguin, which represent 79.2% of the seabirds caught by the purse seine fleet, although a high number of Humboldt penguin were caught only in 2017. When analysing the mortalities of seabirds and mammals due to interaction with the fishery, it is observed that they are low. Considering groups of species, seabirds are the most affected; however, at the species level, the South American sea lion represents 44% of the total mortality. Similarly to the catches of these species, mortalities have also decreased during the monitoring period of the Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO) [2019-2023].

Table 11. Capture of seabirds, marine mammals and reptiles in the industrial purse seine fleet of Jack mackerel that operated between the Valparaíso Region and the Los Lagos Region, and international waters**.** Data from the registry of scientific observers on 2,923 fishing trips, during the period January 2017 - December 2023 (translated from Vega *et al*., 2024).

Common name	Scientific name	2017	2018	2019	2020	2021	2022	2023	Total
Kelp gull	*Larus dominicanus*	18	0	2	0	0	0	0	20
Peruvian pelican	*Pelecanus thagus*	7	0	4	0	0	3	1	15
Magellanic penguin	*Spheniscus magellanicus*	0	0	0	0	0	1	0	1
Humboldt penguin	*Spheniscus humboldti*	13	0	0	0	0	1	0	14
Not identified penguin	*Spheniscus* spp.	0	1	0	0	0	0	0	1
Salvin's Albatross	*Thalassarche salvini*	8	0	0	0	0	0	0	8
Black-browed albatross	*Thalassarche melanophris*	0	1	0	0	0	0	0	1
Pink-footed shearwater	*Ardenna creatopus*	1	0	1	1	0	0	1	4
Sooty shearwater	*Ardenna grisea*	45	0	1	0	0	0	0	46
White chinned petrel	*Procellaria aequinoctialis*	0	1	0	0	0	0	0	1
Wilson's storm petrel	*Oceanites oceanicus*	1	0	0	0	0	0	0	1
Petrel gigante antártico	*Macronectes giganteus*	0	8	0	0	0	0	0	8
Leatherback turtle	*Dermochelys coriacea*	0	0	0	0	0	0	1	1
South American sea lion	*Otaria flavescens*	256	265	62	12	47	147	49	838
Total number of animals captured per year		349	276	70	13	47	152	52	
Total number of species captured per year		8	5	5	2	1	4	4	
Total number of hauls observed on board per year (*)		410	713	336	262	231	397	574	
Coverage of onboard observation per year (**)		16,7	18,3	10,8	10,1	9,3	14,4	17,2	

(*) Actual coverage in number of hauls

(**) Coverage of observers on board this fleet. It does not imply that incidental catch was observed in 100% of the hauls. Coverage is presented in this way, since Sernapesca does not officially record the hauls of each fishing trip.

Table 12. Incidental mortality in the industrial purse seine fleet of jack mackerel that operated between the Valparaíso Region and the Los Lagos Region, and international waters. Data from the scientific observers' registry of 2,923 fishing trips, during the period January 2017 - December 2023 (translated from Vega *et al.*, 2024).

Common name	Scientific name	2017	2018	2019	2020	2021	2022	2023	Total
Kelp gull	*Larus dominicanus*	1	0	0	0	0	0	0	1
Peruvian pelican	*Pelecanus thagus*	0	0	0	0	0	1	1	2
Magellanic penguin	*Spheniscus magellanicus*	0	0	0	0	0	1	0	1
Humboldt penguin	*Spheniscus humboldti*	1	0	0	0	0	0	0	1
Not identified penguin	*Spheniscus* spp.	0	1	0	0	0	0	0	1
Black-browed albatross	*Thalassarche melanophris*	0	1	0	0	0	0	0	1
Pink-footed shearwater	*Ardenna creatopus*	1	0	1	1	0	0	1	4
Sooty shearwater	*Ardenna grisea*	0	0	1	0	0	0	0	1
White chinned petrel	*Procellaria aequinoctialis*	0	1	0	0	0	0	0	1
Wilson's storm petrel	*Oceanites oceanicus*	1	0	0	0	0	0	0	1
South American sea lion	*Otaria flavescens*	7	2	0	0	0	1	1	11

Regarding the rate of by-catch per haul – TCI (*tasa de captura incidental por lance*) for species groups, there has been a consistent decline since 2018 for the three main groups: Procellariiform birds, coastal seabirds, and sea lions. This downward trend in seabird TCI reached its lowest point in 2021, followed by a slight increase in recent years. In contrast, sea lions exhibit a different pattern. A significant decrease was observed between 2017 and 2020, hitting its lowest level in 2020. After that, there was an increase until 2022, returning to levels close to those seen in 2018 (0.5 sea lions per haul). These declining TCI patterns might be linked to the reduced data collection activities by IFOP personnel during the early years of the pandemic (2019-2021), which corresponds with the lower coverage recorded during those periods (Figure 13) [Vega et al., 2024].

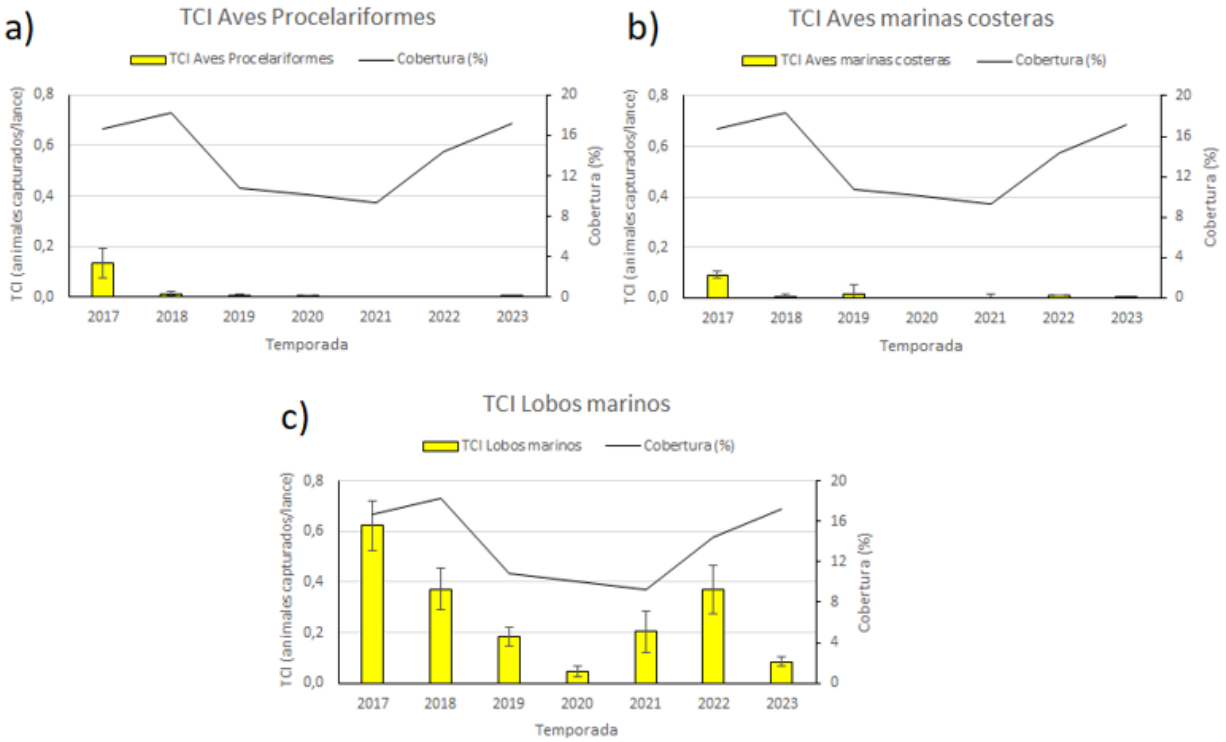

Figure 13. Rate of by-catch per haul – TCI reported in the industrial jack mackerel purse seine fleet operating in the south-central zone during the period January 2017- December 2023: a) Procellariforms birds; b) coastal seabirds; c) common sea lions. Yellow bars refer to TCI and the line refers to the observer's coverage**.** Source: translated from Vega *et al*., 2024.

No significant habitat changes were observed during the site visit that required rescoring of the performance indicators (PIs). The spatial distribution of industrial purse-seine fishing in Biobío from 2017 to 2022 shows that most activity occurred within the Exclusive Economic Zone (EEZ). However, there has been a trend toward more coastal operations, especially in 2022, with a focus on areas within 60 nautical miles offshore. Fishing operations shift monthly, sometimes by up to 250 nautical miles, primarily in a south-north direction. Data was gathered from Fisheries Research Institute (INPESCA) observers and self-reports via electronic logbooks and VMS (Figure 14).

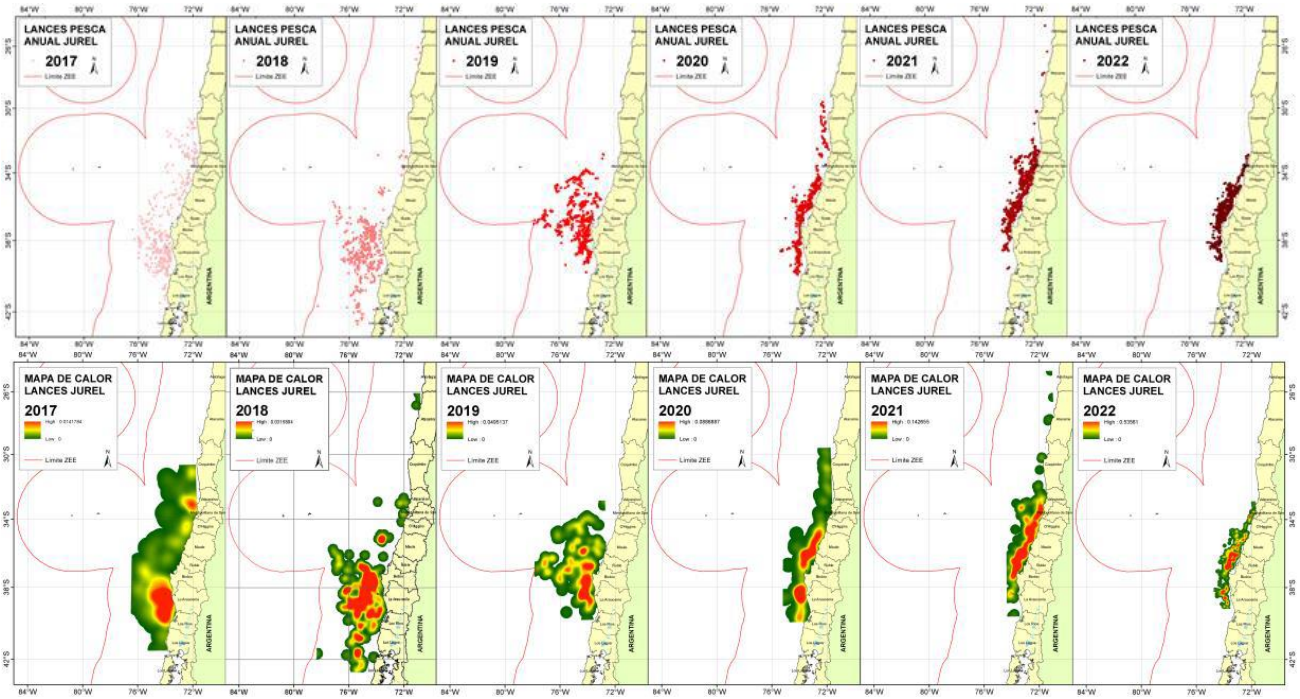

Figure 14. Spatial distribution of jack mackerel fishing hauls conducted by the Chilean industrial fleet from Biobío (A), and heat maps showing the concentration of fishing hauls (B) for the period 2017-2022. Source: INPESCA, 2023.

No significant ecosystems changes were observed during the site visit that required rescoring of the performance indicators (PIs) at the surveillance audit year 4. Although, the reassessment is being conducting simultaneously, a carefully reviews of the ecosystem's PIs will be conducted.

4.3.3 Principle 3 Updates

4.3.3.1 Management System

Since 2012, when the South Pacific Regional Fisheries Management Organization (SPRFMO) came into force, the jack mackerel fishery has been managed by SPRFMO. Since 2014, Chile, in accordance with Article 20 of the Convention, gave its consent to apply the conservation and management measures established by SPRFMO within its national jurisdiction, a situation that remains to date.

The jack mackerel fishery carried out both inside and outside the EEZ by the industrial fishing fleet since 2013 is managed under the regime of Tradable Fishing Licenses (TFL), which correspond to a system of individual quotas that are transferable and transferable and subject to any legal transaction, with an annual quota allocation per shipowner, which will depend on the participation coefficient of the shipowner and the quota established for the calendar year, which has not been modified to date.

Consistent with the above, annually during the year prior to the quota becoming effective, Chile establishes the global catch quota and the LTP is allocated according to the participation coefficient that corresponds to each vessel owner.

In addition to the quota allocated by SPRFMO to Chile, in accordance with paragraph 8 of MCO 01-24, a Cooperating Non-Contracting Party or Member, a CNCP, may transfer all or part of its fishing rights to another Member or CNCP. The Member or CNCP receiving the fishing rights through transfer may exercise those rights in the Convention area and in its waters under national jurisdiction.

4.3.3.2 Relevant regulations

SPRFMO

Management and administration measures adopted by the Commission of the Convention on the Conservation and Management of Fishery Resources on the High Seas in the Pacific Ocean, for the jack mackerel fishery, applicable to Chile, for the development of extractive activity, both within and outside the EEZ, by the national fishing fleet are adopted and their application is required by Chile in accordance with the provisions of articles 7° E and following of the General Law on Fisheries and Aquaculture. Consistent with the above, Chile establishes as national norm the management measures established by the SPRFMO for jack mackerel.

It should be noted that according to the current fisheries regulations established in the LGPA of Chile, quotas must be established during the year prior to their entry into force, however the SPRFMO Commission establishes the quota during the same calendar year in which it is applied, and therefore if there is a difference between what is established by Chile and the SPRFMO, in accordance with the provisions of article 7º E and following of the LGPA, the quota can be modified to make it coincide with what is established by the regional fisheries organization.

The resolutions established by Chile for the application of the measures established by the SPRFMO, for the last years and related to the jack mackerel fisheries, are the following:

1. Resolution No. 1006 of 2023 , of the Undersecretariat of Fisheries, approves the conservation and management measures adopted by the Convention Commission, at the Meeting held virtually from February 19 to 22, 2022, corresponding to the conservation and management measures MCO 01-2023 for Jack mackerel for the year 2023, which established regulations in the following aspects: General Provisions, Effort management, Catch management, which established regulations in the following aspects, Data collection and delivery, Cooperation in relation to fisheries in areas adjacent to areas of national jurisdiction, Special requirements of developing States, Review, Tonnage and participation in the jack mackerel fishery of members and CNCPs for 2023.

2. Resolution No. 911 of 2024 , of the Undersecretariat of Fisheries, approves the conservation and management measures adopted by the Convention Commission, at the Tenth Meeting held in Manta, Ecuador from January 29 to February 2, 2024, corresponding to the conservation and management measures MCO 01-2024 for Jack mackerel for the year 2024, which established regulations in the following aspects: General Provisions, Catch management, Data collection and delivery, Cooperation in relation to fisheries in adjacent areas under national jurisdiction, Special requirements of developing States, Review, and Tonnage and participation in the jack mackerel fishery of Members and CNCPs for 2024.

Chile

The measures adopted by Chile for the jack mackerel fishery for national flag vessels that carry out their activities both within and outside the Chilean EEZ, established during the years 2023 and 2024, are the following:

- **Jack mackerel quotas set by Chile**
  Year 2023: Decree No. 69 of 2022 of the Ministry of Economy, establishes the quota for Jack mackerel for the year 2023, modified by Decree No. 30 of 2023, because of the increase in the quota established by the Convention Commission.
  Year 2024: Decree No. 164 of 2023 of the Ministry of Economy, establishes the Jack Mackerel quota for the year 2024, modified by Decree No. 105 of 2024, which aimed to adjust the national quota to that established by the SPRFMO for Chile.

- **Establishes tonnages for Holders of Tradable Fishing Licenses, LTP:**
  Year 2023: Resolution 2851 of 2022, establishes Class A LTP, for the year 2023; and Resolution No. 2852 of 2022, establishes the Class B LTP for the year 2023, both from the Undersecretary of Fisheries, Modified by Resolution No. 1,287 of June 2023.
  Year 2024: Resolution No. 03 of 2024, establishes the LTP class B, for the year 2024; and Resolution No. 04 of 2024, establishes the LTP Class A for the year 2024, both from the Undersecretary of Fisheries, Modified by Resolution No. 1864 of 2024, to adjust the LTP to the modification of the quota by Decree 104 of 2024.

- **Discard Regulation:**
  Year 2023: Resolution No. 119 of 2023 of the Undersecretariat of Fisheries, establishes for the year 2023, the list of target species, accompanying fauna, and incidental fishing, which regulates discarding.

  Year 2024: Resolution No. 164 of 2024 of the Undersecretariat of Fisheries, establishes for the year 2024, the list of target species, accompanying fauna, and incidental fishing, which regulates discarding.

- **Non- target species**
  Year 2024: Decree No. 12 of 2024, of the Ministry of Economy, which establishes the percentages of species as accompanying fauna and the annual limit of tons to be captured for different species, including jack mackerel, for the year 2024.

People involved in Administration and Science

The institutions and organizations involved in the management, investigation and enforcement of the Industrial Jack Mackerel Fishery have not changed since the fishery was certified, however, there have been changes in the authorities in charge of them.

In March 2022, Mr. Nicolás Grau will take office as Minister of Economy, Development and Tourism. Mr. Julio Salas will take office as Undersecretary of Fisheries in March 2022, and Ms. María Soledad Tapia Almonacid will take office as Director of the National Fisheries Service in February 2023.

Research for fishery management is managed by the Fisheries Development Institute (IFOP) through the Performance Agreement that is carried out annually with the Fisheries Undersecretary. Research in accordance with the law that is not considered to be ongoing can be carried out by the Fisheries Research Fund. The Fisheries Undersecretary establishes annually by Resolution the Research to be developed for fishery management for both entities.

Research Program 2023

The Undersecretariat of Fisheries established by Resolution No. 2,682 of 2022, the Research Program for 2023, the research related to the Jack mackerel fishery is as follows:

– Research to be developed by IFOP

Monitoring and follow-up program:

- Research and Monitoring Program on discards and bycatch in pelagic fisheries, 2023-2024.
- Monitoring program for the main pelagic fisheries in the south-central zone of Chile, between the regions of Valparaíso and Aysén, Year 2023.
- Monitoring program for the main pelagic fisheries in the northern zone of Chile, between the regions of Arica Parinacota and Coquimbo, year 2023.

Hydroacoustic Evaluations:

- Hydroacoustic Assessment of Jack mackerel between the regions of Arica and Parinacota and Valparaíso, year 2023.
- Hydroacoustic Assessment of Jack mackerel between the regions of Valparaíso and Los Lagos, year 2023.

Status, Indirect Stock Assessments:

- Status and possibilities of biologically sustainable exploitation of the national jack mackerel, between the regions of Arica and Parinacota and the Lakes region, year 2024.

Studies to be developed by the Fisheries Research Fund:

- Population genome for fishery management of the South Eastern Pacific Jack Mackerel.
- Review and proposal for methodological improvement in hydroacoustic assessments of national jack mackerel.

Research Program 2024

The Undersecretariat of Fisheries established by Resolution No. 2,098 of 2023, the Research Program for 2024, the research related to the Jack mackerel fishery was as follows:

– Research to be developed by IFOP

Monitoring and follow-up program:

- Research and Monitoring Program on discards and bycatch in pelagic fisheries, 2024-2025.
- Monitoring program for the main pelagic fisheries in the south-central zone of Chile, between the regions of Valparaíso and Aysén, year 2024.
- Monitoring program of the main pelagic fisheries in the northern zone of Chile, between the regions of Arica Parinacota and Coquimbo, year 202.

Hydroacoustic Evaluations:

- Hydroacoustic evaluation of jack mackerel between the regions of Arica-Parinacota and Valparaíso, year 2024.

Status, Indirect Stock Assessments:

- Status and possibilities of biologically sustainable exploitation of the national jack mackerel, between the regions of Arica and Parinacota and the Lakes region, year 2025.

Studies to be developed by the Fisheries Research Fund:

- Design and implementation of management strategies using an open MSE platform in the jack mackerel fishery.

4.3.3.3 Compliance

According to the law, the National Fisheries Service is responsible for verifying compliance with the fishery management and administration measures, as well as the requirements established for users in the Fisheries Law and the Regulations. To this end, the Fisheries Law requires industrial shipowners to use different inspection tools to verify compliance, the most important and currently in force being the following:

- **Certification of Landing**
  As of January 2020, the National Fisheries Service directly certifies landings, which it does in person, and as of May 2021 it can also do so remotely.

- **Satellite positioning of fishing vessels (VMS)**
  Law 21.132 eliminated the confidential nature of information from the satellite positioning system. The National Fishing Service publishes monthly on its website information on the positioning of the fishing fleet. In addition, according to an agreement between the National Fishing Service and the NGO Global Fishing Watch publishes satellite positioning information on the Chilean fishing fleet with a lag of two or three days, in a user-friendly format that is easy to interpret for the user and the general public.

- **Cameras for recording images on board vessels**
  The requirement for cameras to record images began for the entire industrial fishing fleet as of January 1, 2020.

4.3.3.4 Inspections

The National Fisheries Service establishes the National Inspection Plan on an annual basis, which consists of two parts: a public part approved by resolution and a reserved part detailing the highest risk behaviors that must be controlled and the strategies to be applied. Within the framework of the National Inspection Plan for 2023, approved by Resolution No. 736 of December 2022 of the National Fisheries Service, the following inspection actions were carried out in the jack mackerel fishery.

According to the National Fisheries Service, in a consultation carried out through Transparency No. AH010T0005186 of June 2024, a total of 2,822 inspection actions were carried out throughout the distribution area of the jack mackerel, from the northern border of the country to the X Region of Los Lagos, of which 969 corresponded to artisanal fishing and 1,843 to industrial fishing, as shown in the following Table:

Table 13. Inspection actions carried out in the jack mackerel fishery in the UoA area. Source: Sernapesca/ Response to query made through Transparency request No. AH010T0005186 of June 2024.

Inspections for the Jack mackerel Fishery, 2023			
Management Measures	**Artisanal**	**Industrial**	**Total**
Proof of origin	**70**	**7**	77
Inspection of Means of Transport	15		15
Inspection in Marketing Centers	52	2	54
Plant Inspection	3	5	8
Access	**20**	**21**	**41**
Inspection at landings points	10		10
Fishing Zone Inspection	4		4
Plant Inspection	5	4	9

Inspections for the Jack mackerel Fishery, 2023			
Inspection in Means of Transport	1		1
Sanitary qualification of industrial warehouse		17	17
Quotas	**878**	**1647**	**2525**
Inspection of Means of Transport	1	2	3
Inspection in Marketing Center	9	2	11
Plant Inspection	5	18	23
Landing Point Inspection	24	65	89
Inspection in Fishing Zone	22	0	22
Control of unloading in process	71	695	766
Supervision Certification landing	34	75	109
Weight Verification Landing	712	790	1502
Fishing Area	**1**	**4**	**5**
Inspection in Fishing Zone	1		1
Landing Point Inspection		4	4
VMS Device Monitoring		**18**	**18**
Inspection of foreign vessels		**39**	**39**
Sealing of wine cellars		**107**	**107**
TOTAL	**969**	**1843**	**2812**

4.3.3.4.1 Sanctions

According to the National Fisheries Service, in a consultation carried out through Transparency request No. AH010T0005. 186 of June 2024, in the Jurel fishery during 2023, 8 non-compliances were reported, which meant the seizure of 3.37 tons of jack mackerel. Of these,

- 5 were non-compliances at the Disembarkation Point, for accreditation of origin (3), Access (1) and Quota (1);
- 2 were non-compliances in means of transport, for Accreditation of origin (1) and Documentary verification (1)
- 1 was non-compliance in a marketing center, according to Statistics.

It should be noted that, during 2023, no breaches were reported to the Extractive industrial fishing sector.

4.3.3.4.2 Quotas

SPRMO

In accordance with the recommendation of the Scientific Committee, in a session held between September 11 and 16, 2023, a 15% increase in the TAC was recommended, which should not exceed 1,242 tons of jack mackerel. With this recommendation, the Convention Commission, in a meeting held in Manta, Ecuador between January 29 and February 2, 2024, agreed and established CMM 01-2024, with the total catches of Jack mackerel *Trachurus murphyi* by 2024.

The total catch of jack mackerel in the Convention Area for 2024 shall be limited to 1,135,297 tonnes. Members and CNCPs shall share in this total catch in the percentages and tonnes set out in the following Table:

Table 14. Allocation of Jack mackerel to Members and PCNC for 2024. Source: CMM Standards 01-2022; CMM 01-2023 and MMM 01-2024, of the Commission of the Convention for the Conservation of Natural Resources and Management of Fisheries Resources of the High Seas of the South Pacific**.**

Allocation of Jack mackerel to SPRFMO Contracting Members and CCPs 2022 to 2024						
Year	**2022**		**2023**		**2024**	
Maximum Quota	900,000		1,080,000		1,242,000	
Member /PCNC	**CMM 01-2022**		**CMM 01-2023**		**CMM 01-2024**	
	Percentage	Tonnege	Percentage	Tonnege	Percentage	Tonnege
Belize			0.1019	1,100	0.1060	1.317
Chile	64,5638	581.074	66,3665	716.758	66,0000	819.720
China	6,3477	57.129	5,8459	63.136	5,9700	74.147
Cook Island	0	-	0,1019	1.100	0,1010	1.266
Cuba	0,2231	2.008	0,2055	2.219	0,2055	2.552
Ecuador	1,2638	11.374	1,1639	12.570	1,1639	14.456
European Union	6,1086	54.977	5,6257	60.758	5,9619	74.047
Faroe Island	1,1087	9.978	1,0211	11.027	1,0211	12.682
Korea	1,2822	11.540	1,1808	12.753	1,1920	14,805
Panama			0.1019	1,100	0.1019	1,266
Peru	2.0284	18,256	1.8681	20,175	2.0400	25,337
Russian Fed.	3.2825	29,543	3,023	32,649	3,2400	40,241
Vanuatu	4.6738	42,064	4.3044	46,487	4.3044	53,461
Total		**817.943**		**981.832**		**1,135,297**

CHILE

The total jack mackerel quotas established by Chile for the period 2017 to 2024 must be consistent with those established by the SPRFMO, however, for 2024, Chile has not yet adjusted the quota. The following Table presents the total jack mackerel quotas established by Chile.

Table 15. Quotas established for the Jack Mackerel fishery by Chile, period 2017-2024. Decrees on annual quotas for jack mackerel Source: Ministry of Economy.

Chilean Jack Mackerel Quota	
Year	**TAC UoA in ton.**
2017	317.300
2018	371,887
2019	381,572
2020	439.034
2021	504.889
2022	581.074
2023	716.758
2024	819.720

The national catch quota for the industrial sector is complemented by the quota transferred from some countries of the South Pacific Regional Fisheries Organization, ORP. During 2023, a total of 145,371 tons of jack mackerel were transferred to Chile, of which 108,112 were caught by the industrial sector and 37,259 tons were caught by the artisanal sector. The following Table presents the actual available jack mackerel quota of the UoA, considering the transfers from some members and PCNC.

Table 16. Allocated Quota, Available Quota and Total Catch of Jack mackerel in the UoA. Source: Sernapesca.

Jack mackerel, TAC and UoA Capture, 2019 -2023				
Year	**TAC UoA Asynda**	**Transfer of SPRFMO to Chile**	**TAC available UoA**	**Total Capture UoA**
2019	381,572	69,687	451,259	453,570
2020	439,034	127,727	566,761	561,824
2021	504,889	132,581	637,470	626,389
2022	581,054	105,238	686.292	679.244
2023	637.036	108.112	745.148	742.087

The assigned and available quota of the UoC, that is, Industrial Jack mackerel from Region III to X, as well as jack mackerel catches, for the period 2019 to 2023, is presented in the following Table 17.

Table 17. Assigned Quota, Available Quota and Total Catch of Jack mackerel in the UoC. Source: Sernapesca.

TAC and Catches UoC of Jack mackerel - III-X Region					
YEAR	**TAC UoC Assigned**	**transfer to UoC of Chile**	**Transfers within Chile**	**CT scan available UoC**	**UoC Capture**
2019	285.886	69.687	49.459	405.032	403.367
2020	328.195	127,727	25.873	481.795	480.836
2021	378.232	107,581	23.217	509.030	507.030
2022	435.325	105.238	30.933	571,496	570.126
2023	537.006	108.112	17,778	662.896	662.704

Transfers of jack mackerel within Chile come from quota transferred from the industrial sector of the area outside the Certification Unit and from artisanal transfers in accordance with the provisions of article 55 N of the LGPA. It should be noted that 89.30% of the total caught in the UoA is captured in the UoC of jack mackerel.

4.3.3.5 Fleet operating in the EEZ

According to the information provided by Chile to the Scientific Committee of the South Pacific Regional Fisheries Organization, the Chilean fishing fleet by range of capacity that operated in the jack mackerel fishery, for the period 2016 to 2023, both within the Chilean EEZ and outside it, is presented in the following Table.

Table 18. Vessels that carried out activities in jack mackerel in Chilean EEZ reported to SPRFMO. Source: SPRFMO.

Vessels that carried out activities in jack mackerel in Chilean EEZ reported to SPRFMO								
Holding Capacity (m^3)	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
0-300	3	0	0	0	0	0	0	0
300-600	57	57	46	42	42	27	23	18
600-900	7	5	5	7	6	5	4	3
900-1200	1	2	1	1	1	1	1	1
1200-1500	6	8	7	8	8	8	8	8
1500-1800	9	9	9	10	10	10	10	10
1800-2100	4	4	4	4	4	4	4	4
Total	**87**	**85**	**72**	**72**	**71**	**55**	**50**	44

Table 19. Vessels that carried out activities in jack mackerel outside Chilean EEZ reported to SPRFMO. Source: SPRFMO.

Holding Capacity (m^3)	2016	2017	2018	2019	2020	2021	2022	2023
0-300	0	0	0	0	0	0	0	0
300-600	0	0	0	0	0	0	0	0
600-900	1	0	0	0	0	0	0	0
900-1200	0	1	0	0	0	0	0	0
1200-1500	0	0	1	0	0	0	0	0
1500-1800	2	2	0	2	0	0	0	0
1800-2100	2	0	1	0	0	0	0	0
Total	5	3	2	2	0	0	0	0

4.4 Changes which impact traceability systems

Table 20. Changes affecting traceability and segregation.
Are there any developments or changes within the fishery that affect traceability and the ability to segregate MSC from non-MSC products?
NO Traceability in this fishery has not changed since the PCR and has been reviewed during each surveillance audit to ensure that there have been no significant or relevant changes. However, during the re-assessment of the fishery, a thorough review of all relevant traceability points will be conducted.

4.4.1 Traceability within the fishery description

Table 21. Traceability within the fishery.
Statement on fishery's ability to track and trace to each Unit of Certification
Systems allow the fishery client to track and trace any fish or fish products sold as MSC certified back to the individual UoC.
Movement of fish and fish product between **harvest** and **landing** *An illustration of movement of product between harvest and landing. Include when any of the following happen: Harvesting, At-Sea processing, Translocation, Transhipment, Offloading, Landing.*
The scope of this certification ends at the points of landing. Downstream certification of the product will require appropriate certification of storage and handling facilities at these locations. In order for subsequent links in the distribution chain to be able to use the MSC logo, jack mackerel products must enter into a separate chain of custody certification from the point of landing forward. The subsequent links must be able to prove that they can trace jack mackerel products back to the permitted vessels which landed the product.
Movement of fish and fish products between **landing** and **start of the CoC** if relevant. *An illustration of movement of product between landing and start of CoC. Include when any of the following is happening: Transport, Storage, Sorting/ Grading, Packing, Auction.*
The merchandise is unloaded and distributed to the factories in tanks of seawater.
Description of any processing and sorting/ grading prior to change of ownership
The fish are storage in tanks and all the processing start after the change of ownership.
For the critical tracking events (i.e. where in the product flow this data needs to be transferred) of all fish and fish product handling and sale not covered by CoC describe: • Process of segregating to each Unit of Certification • Key data elements (i.e. the data or documents to identify the UoC such as species, catch area, gear)
Landing Reports: Upon landing, fishers must submit landing reports that detail the species, quantity, and condition of the fish. These reports are submitted to the relevant authorities, such as the National Fisheries Service (SERNAPESCA). Inspection and Verification: Authorities conduct inspections at landing sites to verify the information provided in landing reports. This includes checking the consistency between logged catches and reported landings. Certification and Labelling:

Fish that meet sustainability criteria may receive certification from recognized organizations. This certification can include traceability labels that inform consumers about the origin and sustainability of the fish. Distribution and Supply Chain Tracking: The traceability system extends to the supply chain, ensuring that fish can be tracked from landing to processing and distribution. This may involve barcoding or other tracking technologies. Consumer Information: Efforts are made to provide consumers with information about the fish they purchase, including its origin and sustainability status, often through labelling and public awareness campaigns. This comprehensive traceability system helps ensure that jack mackerel fisheries in Chile are managed sustainably and transparently, contributing to better resource management and consumer confidence.
Where there are IPI stock(s) within the scope of certification, describe the verification of traceability systems
NA
Other relevant information on the systems to track and trace to each UoC
NA

4.4.2 Traceability within the fishery description

Table 22. Traceability risks and mitigation within the fishery.	
Factor	Description *Please state whether this occurs within the fishery and how frequently (e.g. regularly, seasonally, rarely). If so, please describe how this potential traceability risk is mitigated and any risk management.* *If this is covered by information provided elsewhere in the report (such as Table 21* **Table 21** *for segregation or in section 5 MSC Fisheries Standard – Principle 3 – Effective management for regulatory frameworks) cross-reference as needed.*
Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: - If this may occur on the same trip, on the same vessels, or during the same season; - How any risks are mitigated.	Jack mackerel is only caught by purse seine. The at-sea tracking and tracing systems described above ensure that the potential for non-certified gears to be used within the fishery to be negligible.
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: - If this may occur on the same trip; - How any risks are mitigated.	All vessels are equipped with VMS, there is a high level of observer coverage, and there is extensive record keeping required to verify this. All landings are subject to dockside monitoring. These checks will confirm the area of capture and ensure only fishfrom within the UoC are eligible to qualify for certification.
Do vessels from outside the UoC and/or client group ever fish on the same stock?	The artisanal fleet sector target jack mackerel with purse seines. Administrative checks, including 100% dockside monitoring will ensure that landings from the client group vessels is not mixed with fish from vessels outside of the client group.
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities and should reflect those listed in product movement in Table 21. It includes: - Translocation - Transhipment - Transport - Storage - Processing - Sorting/grading - Packing - Landing - Auction	Where there is potential for mixing, these risks are managed by the operators who have their own protocols in place to separate catches.

Table 22. Traceability risks and mitigation within the fishery.	
If Yes, please describe how any risks are mitigated.	
Does transhipment occur within the fishery? If Yes, please describe: - What is the type of transhipment in-port/high seas/other; - What are the systems used to track and trace UoC For high seas transhipment please describe how the systems to track and trace to the UoC: - Are verified independently of the fishery client; - Cover all fishing and receiving vessels involved in transhipment. - Apply to all transhipment events If any of these 3 criteria above are not met for high seas transhipment, CoC certification is required for both the fishing and receiving vessels involved in this transhipment.	Jack mackerel are not processed at sea. They are kept aboard vessels in refrigerated salt water (RSW) tanks and landed whole to shore based processing facilities.
Are trading agents to be covered within the fishery certificate? If yes, please describe: - How information on UoC is passed through	Transhipments are not authorised for Chilean vessels unless under strict conditions. Boats must be registered and notify their intentions in advance so that the process can be inspected.
Are there any other risks of mixing or substitution between certified and non-certified fish? If No, refer to the section describing product movement and segregation which demonstrates this.	No additional risks were identified.
Are there any other risks of mixing between different Units of Certification? If Yes, please describe: - link to any relevant variations relating to this If No, refer to the section describing product movement and segregation which demonstrates this.	No, there is just one UoC.

4.4.3 Traceability within the fishery description

Table 23. Traceability risks and mitigation within the fishery.

Determination on whether fish and fish products from the certified UoC(s) can go onto be sold as certified. Including: • *Whether the ability for fish and fish products to be sold as certified is conditional upon CoC certification;* • *If traceability systems still need to be established prior to either CoC certification OR revised fishery determination*.
It is determined that fish and fish products from the certified Units of Certification can go onto be sold as certified
The point of change of ownership of product to any party not covered by the fishery certificate and detail of any trading between client group members prior to this
The ownership changes when the fish is landed
The point from which subsequent Chain of Custody (CoC) is required *The latest this can happen is the point of change of ownership of fish or fish product to any party not covered by the fishery certificate (reference section above) but it may happen sooner in which case describe as per the product flow (in Table 21). Note the requirement for when CoC is required to start on High Seas Transhipment.*
The CoC is required in the factories.
The entities, or categories of entities, at the point of landing and/or sale required to have separate CoC including any auctions, selling agents, offloaders or storage facilities and so not covered in the above two tables (Table 21 **Table 21** and Table 22).

Caldera	Atacama III
Coquimbo	Coquimbo IV
San Vincente	Bio Bio VIII
Lota	Bio Bio VIII

A list of entities, or categories of entities, eligible to access the certificate and sell product as certified including: • *Confirm if all vessels within the geographic area and gear of the UoC are eligible to sell fish and fish products as certified* • *Any other limits to vessel types, ownership, client group membership* • *Include any trading agents used*
The client group is all the members that are part of SONOPESCA
Points of landing, auctions or other transfer which may be used for the sale of fish from the certified fishery into further chains of custody, either: • *The geographic region where all landing points are possible, or* • *Named landing points, auctions or other transfer sites if there are limits*
See the list above
Any specific eligibility criteria for product to be sold as certified, or where to find this information where relevant, including: • *Product form* • *Trip type (e.g. includes outside EEZ),* • *Need for Chain of Custody* • *Need for trading through client group members*
N/A
How fish or fish products can be identified or can be confirmed as certified at the point it enters certified CoC, including:

• *How information on gear, species, stock, area, vessel (where relevant) client group member (where relevant) is provided* • *Any segregation to UoC required of first buyers (e.g. sort batches by species* • *Where relevant how any specific eligibility criteria can be confirmed by the first buyer (as per section above)*
Cross referencing of VMS data with logbooks, observer and aerial and at-sea surveillance reports also ensures that fish is reported from the correct area of capture. All vessels have to hail in and out before leaving or returning to port. All landings are monitored by independent dockside monitors. Vessels have to advise SERNAPESCA before discharging and are subjectto regular monitoring by enforcement officers
How IPI is identified to first buyers at the point it enters certified CoC where relevant
No IPI are identified in this fishery.

5 Surveillance

5.1 Summary overview

5.1.1 Summary of conditions update

Table 24. Summary of Conditions.

Condition number	Condition	Performance Indicator (PI)	Status	PI original score	PI revised score
1	The client shall ensure by the third surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	1.2.1 (f) Harvest strategy	On Target	75	**95** (Closed at surveillance 4)
2	The client shall ensure by the fourth surveillance audit that there are well defined HCRs in place that ensure that the exploitation rate is reduced as the PRI is approached and they are expected to keep the stock fluctuating around a target level consistent with (or above) MSY.	1.2.2 (a) Harvest control rules and tools	Closed	75	**80** (Closed at surveillance 3)
3	The client shall ensure by the third surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species and evidence shall be presented to show that they are implemented as appropriate.	2.2.2 (e) Secondary species management	On Target	75	**95** (Closed at surveillance 4)
4	The client shall ensure by the third surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and evidence shall be presented to	2.3.2 (e) ETP species Management	On target	70	**85** (Closed at surveillance 4)

	show that they are implemented as appropriate.				
5	The client shall ensure by the second surveillance audit that: • There are established decision-making processes that result in measures and strategies to achieve the fishery specific objectives. • Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. • Information on the fishery's performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	3.2.2 (a, b, d) Decision making-processes	Closed	65	**85** (Closed at surveillance 1)
6	The client shall ensure by the third surveillance audit that the monitoring, control, and surveillance (MCS) system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	3.2.3 (a) Compliance and enforcement	Closed	75	**80** (Closed at surveillance 2)
7	The client shall ensure by the third surveillance audit that the fishery-specific management system is subject to regular internal and occasional external review.	3.2.4 (b) Monitoring and management performance evaluation PI	Closed	70	**80** (Closed at surveillance 1)

5.2 Re-scoring Performance Indicators

5.2.1 PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	**Harvest strategy design**			
	Guide post	The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1 SG80.	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.	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in PI 1.1.1 SG80.

The approach in managing the fishery of SPRFMO and Chile incorporates the key elements of harvest strategies as defined by MSC as the combination of the following elements:
- Monitoring
- Stock assessment
- Harvest control rule
- Management actions

The monitoring and data collection are clearly in place both in the framework of SPRFMO and Chile (IFOP and INPESCA). The stock assessment is carried out every year by SPRFMO with a benchmark process foreseen every 2 years. The harvest control rule is in place that allow the main harvest control tools (TACs and quotas) to vary according to stock status as measured against biological reference points in the context of a recovery plan. The latter allows SPRFMO and Chile to respond rapidly to any changes in stock status. SPRFMO continues to respond to the need to reduce the risk of overcapacity by limiting the size and the effort of the national catching fleets for Chilean jack mackerel. There is evidence that the harvest strategy has been successful in returning the stock to BMSY. **Therefore, SG 60 is met.**

There is an annual TAC which is explicitly precautionary while the applied harvest control rule defines how fishery managers must respond to changes in stock status. The management cycle is described in the fishery management plan (SUBPESCA 2017**). Therefore, SG 80 is met**.

The harvest strategy reflects the approach taken by SPRFMO and the member countries that recognized the critical need to establish a strong response to stop overfishing of jack mackerel and to recover the stock to BMSY. In addition to the rational presented above (SG 80) this provides evidence that the harvest strategy is designed to meet stock management objectives as demonstrated by the fact that in 2017 the stock is at BMSY. **Therefore, SG 100 is met.**

b	**Harvest strategy evaluation**			
	Guide post	The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been **fully evaluated** and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	**Yes**	**Yes**	**Yes**

PI 1.2.1	There is a robust and precautionary harvest strategy in place

Rationale

The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.

The harvest strategy has been fully tested and evaluated by Hitzen et al. (2014), using a Management Strategy Evaluation (MSE) approach in 2014. This study described a framework developed to evaluate the proposed rebuilding plan and potential alternative plans. The output of the 2013 jack mackerel stock assessment has been used as the basis for these evaluations. Based on two stakeholder consultations a number of alternative plans were developed and evaluated. The derivation and design of these plans are presented in this study. The results of the evaluation of the plans, using MSE, show the performance of these plans according to a number of performance statistics evidencing that the plan shows a moderate increase in SSB. SSB is able to rebuild to values close to BMSY under the low recruitment scenario, thereby being associated with moderate to low catches when compared to the other HCRs.

Under the long-term recruitment scenario, the alternative plans stand out in terms of anticipated increase in SSB, higher than 2 x BMSY. This HCR is also being associated with among the lowest catches reported. The original SPRFMO proposed plan scores on average all performance statistics evaluated, compared to the other HCRs. Taking into account such outcomes as well as the evidence of the current SSB, it is possible to conclude that evidence exists to show that the harvest strategy is achieving its objectives including being clearly able to maintain stocks at target levels. **SG 60, 80 and 100 are met.**

c	**Harvest strategy monitoring**			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	**Yes**		

Rationale

The SPRFMO approach involves full monitoring of fishing activity, with annual up-dates on stock status supporting the frequent benchmark process. **Therefore, SG 60 is met**.

d	**Harvest strategy review**			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**Yes**

Rationale

The harvest strategy is periodically reviewed and improved as necessary.
The various key elements of the harvest strategy are reviewed by the scientific committee and intersessional working groups and considered in the annual meeting of the SPRFMO (SPRFMO 2017). On the basis of findings, individual elements of the harvest strategy may be revised e.g. considering potential changes to the assessment model, the use of VMS and increased observer coverage. Therefore, SG 100 is met.

e	**Shark finning**			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**

Rationale

Jack mackerel is not a shark species

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
f	**Review of alternative measures**			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	**Yes**	~~No~~ Yes	~~No~~ **Yes**

Rationale

There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.

~~Chilean fisheries regulations forbid discarding. The UoA has a monitoring system that assists the captain to avoid areas with high concentration of juvenile (www.fishtrack.com), which is the main reason for discarding due to the lack of market value for smaller fish. Moreover, as evidenced during the site visit, discard is negligible. Therefore, it is possible to conclude that there are alternative measures to minimize UoA-related mortality of unwanted catch of the target stock. Therefore, SG 60 is met.~~
~~A specific regulation on discards in the Chilean jack mackerel fishery is under preparation. One of the roles of the enhanced observer programme being formulated by SPRFMO is to identify levels of discard. In Chile, two action plans are being implemented to respond to the issues of discards quantification and minimization. The SPRFMO is in the process of designing the observer programme~~
~~While there are proposals in the Chilean Action Plans to review the effectiveness of the steps to reduce potential discards, as yet there is no evidence to show that there has been a regular review. Therefore SG 80 is not met~~

According to discard reduction plan for Chilean Jack mackerel (SUBPESCA, 2019), there is an annual review of impact of unwanted catch on the status of target and non-target species. SUBPESCA (2019) proposed different alternative options to reduce unwanted catch on target, and non-target species as well as metrics to evaluate effectiveness of the management measures to reduce unwanted catches. These proposed evaluations of the management measures to mitigate bycatch impact are set to be conducted every year (Vega *et al*., 2019, 2020, 2021, 2022; Ossa *et al*., 2023).

One of the specific objectives in the Jack mackerel monitoring of discards program reports is to propose alternatives for changes, regulatory, technological, operational, market, cultural, user training, or other modifications, whose implementation promotes the reduction of discard and bycatch, as well as to evaluate the level of implementation and effectiveness of the mitigation measures contained in the enacted reduction plans.

There is an ongoing process of reviewing causes for the Jack mackerel discards as target species in the south-central industrial Jack mackerel purse seine fishery (Vega *et al*., 2019, 2020, 2021, 2022; Ossa *et al*., 2023; INPESCA, 2023).

In this context, the discard and bycatch mitigation plan that SUBPESCA has issued for this fishery is analysed in detail and it is considered as an analysis criterion whether or not the declared cause corresponds to the causes that the plan authorized for this fishery. Thus, for this fishery in the research program, a list of general causes is mostly considered, and since this fishery has a monitoring plan for mitigation measures, the criterion indicates the level of compliance with the causes according to the stipulations of the respective plan (Vega *et al*., 2019; Ossa *et al*., 2023; INPESCA, 2023).

Finally, stock status is usually assessed every year and scientific advice is provided for catch options and alternatives to unwanted catch. The Advisory Committee consultative process leads to a consensus recommendation on TACs and other conservation and management measures to reduce UoA-related mortality of unwanted catch of the target stock. As of 2018, estimates of discarding resources managed with quotas have been considered in the process of establishing annual global catch quotas for Chilean fisheries.

PI 1.2.1	There is a robust and precautionary harvest strategy in place

Among some of the new measurements for mitigation of discards of Jack mackerel issued after the authorization of the Jack mackerel discards reduction plan (2019) are as follows:

(2019) Mandatory sets of measures to avoid bycatch and discards in the Jack mackerel fishery established through Exempt Resolution N° 16 of 2019; http://www.subpesca.cl/portal/615/articles-104138_documento.pdf26/2019.

(2020) Implementation manual of good practices (INPESCA, 2023).

(2020) Modification of the tolerance margin for the harvest of Jack mackerel individuals under legal minimum size; https://www.subpesca.cl/portal/615/articles-107327_documento.pdf.

(2021) Regulation of the transfer of excess catch between purse seine vessels to avoid discarding; https://www.subpesca.cl/portal/615/articles-110427_documento.pdf

Ossa *et al*. (2023) analyzed the percentage of Jack mackerel discarded in the fishery showing an increase, going from 1.1% in 2015 (Vega *et al*., 2017) to 9.3% in 2017 (Vega *et al*., 2018). Over the following years after the implementation of the Jack mackerel discards reduction plan, a decrease in the percentage value, falling to 0.2% in 2020 (Vega *et al*., 2021). Finally, during the last two years, this value has remained ≤1.5% of the total catch (Ossa *et al*., 2023).

On their analysis they identified "reasons of safety in the operation (mechanical failure or risk of the crew)" as the major cause of discarding Jack mackerel and this was evident in the highest volume of discards and, in the highest percentage in discarded weight. The major reason of Jack mackerel discarding in the industrial purse seine fishery Central South (safety in the operation, mechanical failure or risk of the crew) is in compliance with the regulations of discards reduction plan where the discarding of the target species will only be authorized, for documented reasons of safety at sea, due to mechanical failure, risk to the crew of the ship or vessel (SUBPESCA, 2019).

Finally, it can be concluded that for the Chilean Jack mackerel Central South industrial purse seine fishery, the fisheries management bodies have complied with all the legal and regulatory requirements in matters of discard and bycatch corresponding to the different phases of the process; diagnosis, reduction and control, either by allocating budget and developing research projects to collect adequate technical background, establishing reduction plans and reviewing all associated regulations and finally implementing in 100% of the fleet, modern control mechanisms and sanctions for non-compliance.

This process has been built collaboratively with users through different instances such as Management Committees, Scientific Committees, Industrial Guilds.

The results of the process are positive, having achieved the objectives of reducing discard and bycatch, as evidenced by the data collected by IFOP and SERNAPESCA, where currently the percentages of discard are close to zero in 2023 (Rodrigo Vega, 2024- personal communication in August 2024)

PI 1.2.1	There is a robust and precautionary harvest strategy in place

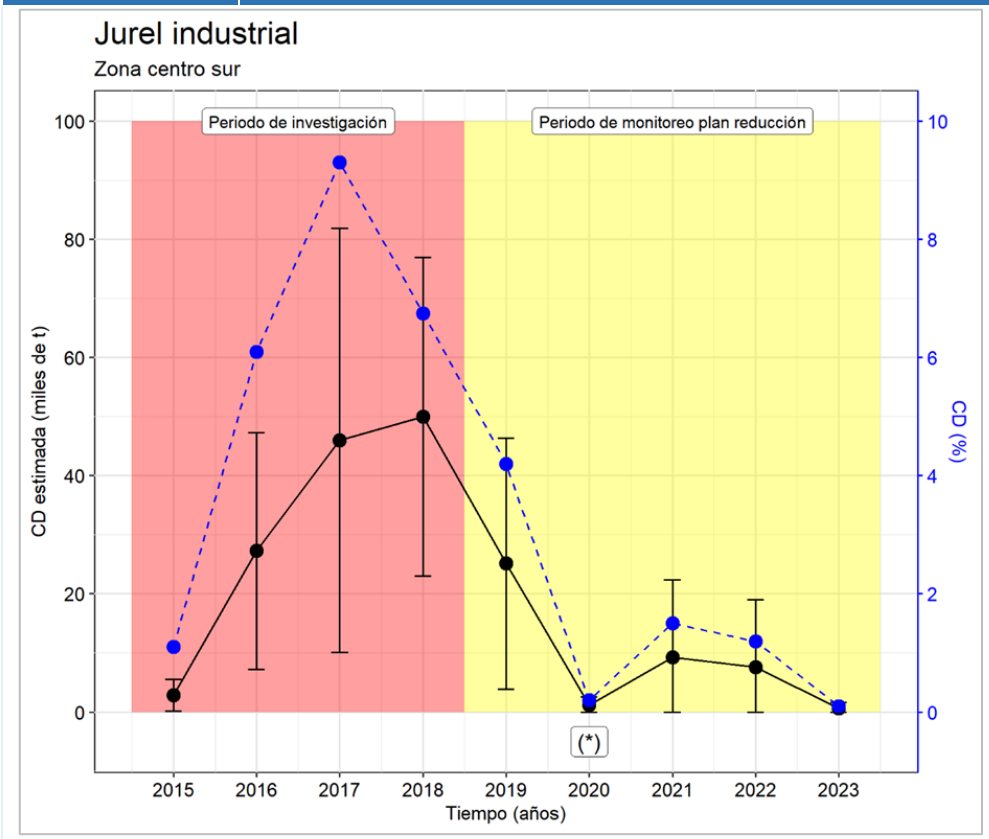

Figure 15. Information on the industrial mackerel fishery that operated in the south-central zone during the period 2015-2023. The variable with the y-axis on the left is the estimated discarded catch (solid black line, with confidence intervals included). The secondary y-axis shows the percentage of discarded catch (segmented blue line). Information from observers. (*): Start of the period with the use of DRI systems (Rodrigo Vega personal communication July 22, 2024).

Given the almost zero percentages of discards for the target fishery and the high compliance of the fishery with the measures proposed from the fishery reduction plan, it can be said that there is a biennial review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate. **SG60, SG80 and SG100 are met**.

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PI 1.2.1	There is a robust and precautionary harvest strategy in place

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Overall Performance Indicator score

Overall Performance Indicator score	Applicable SGs/elements met			Overall score
	SG60	SG80	SG100	
	3 of 3	3 of 3	3 of 4	~~75~~ **95**
Condition number (if relevant)				

5.2.2 PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	**Management strategy in place**			
	Guide post	There are **measures** in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **strategy** in place for the UoA for managing main and minor secondary species.
	Met?	~~¥~~ Yes	~~¥~~ Yes	~~₦~~ Yes

Rationale

There is a strategy in place for the UoA for managing main and minor secondary species.

The main secondary species that were identified for this fishery in the initial assessment were: Peruvian pelican, sooty shearwater, albatross species, cape petrel/cape fulmar) and the minor secondary species were: Humboldt squid, chub mackerel, blue flathead, snoek, south Pacific hake and Patagonian grenadier/hoki.

The terms “measures”, “partial strategy” and “strategy” used in this SI are defined in the MSC FCR v 2.0 (Table SA8) - the FCR text is reproduced in the rationale for PI 2.1.2 SIa).

It was reported during the site visit that the vessels operating in the industrial Jack mackerel fishery are required to operate more than 5 nautical miles from the coast, and specifically target shoals of Jack mackerel (located using satellite and oceanographic data). These management measures were considered by stakeholders to form a key part of a partial strategy that minimises interactions with non-target species, and in particular the out of scope species (such as pelicans) which are more abundant closer inshore and which have been observed to suffer more adverse impact from fisheries for smaller pelagic species such as anchovies and sardines.

The evidence available for the 4 “main” secondary species indicates that the partial strategy in place (in the form of the measures that require fishing in offshore areas and specifically targeting Jack mackerel) results in a very low level of mortality relative to the population size of each species. The increasing population trend for each species clearly shows that the fishery is not hindering their recovery, meeting the SG 60 and SG 80 requirements.

Revisions were made to the national fisheries legislation (LGPA) in 2013. Article 1C (i) of the LGPA requires that measures are introduced in the context of the national fisheries policy to “minimize the discarding of both the target species and the accompanying fauna and the capture of bycatch.” ~~A “Discard Plan” is in preparation for the fishery, in response to this requirement, and using the information gathered from the IFOP study of the fishery. Whilst is it clear that work is underway, in the absence of strategy in place to manage interactions with non-target species the SG 100 requirements are not presently met.~~ The LGPA also mandates the return of marine mammals, reptiles, penguins, and other birds to the sea unless they are severely injured, in which case they are sent to rehabilitation centres. All bird bycatches must be recorded in the logbooks. Discards of all secondary species are strictly prohibited, and all catches must be logged.

The “Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)” implements measures to minimize interactions and catches of both

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch

birds and non-bird species. The Plan includes a robust monitoring program, training sessions, dissemination programs, and a code of good practices aimed at reducing incidental catches. It also ensures compliance with best practices, such as changing fishing areas and communicating with the rest of the fleet when incidental catch occurs, and avoiding high bycatch zones.

A protocol for ensure the adequate record of images with the use of Image Recording Device - IRD in industrial purse seine fishery of south-central Chile has been approved (RES.EX. N°2738/2019) and currently all industrial vessels have implemented the device on the vessels (INPESCA, 2023).

Therefore, as there is a Plan for reducing discards established, bycatch measures and IRD in place, monitoring, and recording all catches in logbooks, resulting in minimal incidental catches and maintaining species above biologically based limits, there is a strategy in place for the UoA for managing secondary species. **SG 100 is met.**

b	**Management strategy evaluation**			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	¥ **Yes**	¥ **Yes**	₦ **No**

Rationale

There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.

The MSC has provided an interpretation to guide the application of this SI which states that the “if necessary” clause included in SIa above should also apply to SIb and SIc (Marine Stewardship Council 2015a).

Since 2015, a research program focused on discards and incidental catches in the industrial Jack mackerel fishery and its accompanying fauna has been operating along the south-central Chilean coast and international waters. Scientific observers have been working onboard vessels to monitor bycatch levels and interactions with seabirds, marine mammals, and sea turtles, as well as associated non-target species. Fishermen have also contributed with data through logbooks and workshops to discuss possible measures for reducing discards.

The data gathered by the IFOP observer programme ~~and summarised in section 3.6.1.1 of this report~~ provides an objective basis for confidence that the partial strategy and measures in place are working in this UoA: the catch rates of any non-target species in the Jack mackerel fishery are very low indeed, and the mortality rates for the out of scope “main” secondary species are also very low ~~(see the scoring rationale for PI 2.1.2 SIa above). The SG 60 and 80 requirements are therefore met.~~

The collected data from 2015-2018 were used to develop the “Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and Its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO).” An evaluation of the data obtained by the scientific observers from 2015-2018 identified the species associated with the fishing activity, based on their capture, mortality rates and the type of interaction with the fishery. This variability was linked to spatiotemporal and environmental patterns, considering the vulnerability or risk to the populations of the most frequently caught species. Following this, a bibliographic review of national and international fisheries strategies were conducted to find applicable measures for the purse seine fleet operating in the south-central region.

The plan contained general measures for reducing the incidental catches on the fishery, such as establishing programs of monitoring, training and dissemination of measures, application of IRD for record and supervise all discarding, compliance with

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch

the rule of change of fishing area (*move on* technique) and communication to the rest of the fleet when there is presence of incidental catch in fishing operations, maintain scientific observers on boards, compulsory logbook records.

Vega *et al*. (2019) presented the results of the program and proposals that were made to the Management Committee for the mitigation of the discards on the Jack mackerel fishery. One of the recommendations that were mentioned in Vegas *et al*. (2019) that would be applied to reduce the discards of the minor secondary species, Humbold squid and chub mackerel, were allowing vessels to safely transfer excess catch from the codend and implementing. This maneuver, named Transfer of Surplus Fishing Haul - TEL (*Traspaso de Excedentes del Lance de Pesca*), involves transferring surplus catch to another vessel with available storage capacity and it was regulated by Res. Ex. 862 25/03/21 Minecom Subpesca. According to INPESCA (2023), TEL has reportedly reduced Jack mackerel discards during 2020-2022. However, INPESCA did not analyse the reduction of Humbold squid neither chub mackerel discards for vessels using TEL. During the audit, it was informed that bycatches of the fishery are so low that applying TEL has not been required for these species. INPESCA (2023) has also noticed a decrease in the number of registered accompanied fauna species from 2020 to 2022 and suggested that this might be related with application of the rule of change of fishing area that has been incentivized through code of good practices, which consists in communicating to the rest of the fleet when there is presence of bycatch in fishing operations and search for another fishing zone.

Several measures and recommendations of good practices for reducing incidental catches of birds were included on the Plan, but they did not focus on any bird species in particular, except one for *Ardenna* species. It was proposed to evaluate the feasibility of carrying out spatio-temporal management based on indicators considering certain delimited areas, for specific periods and/or times (later on, Decree 21/2020 approved a plan for the recovery, conservation and management of the *Ardenna creatopus* - pink-footed shearwater, but it did not include the sooty shearwater, which is a main secondary species of this fishery). The measures for birds in the Plan included preparation and compliance with mandatory protocols to deter birds retained in the purse seine, suspend fishing hauls for discarding catches to release/return the birds and preparation and formalization of protocols of identification of species, safe handling on board, registration and release the animals seeking their survival.

Studies have shown that the dissemination programs of good practices on discards have been effective. INPESCA (2023 and 2024) monitored the Jack mackerel industrial purse seine fleets of south-central Chile from 2020-2024 and concluded that efforts have made to implement actions to mitigate discard and reduce bycatch. ATF-Chile in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, carried out in 2022 an external review process of the development of local protocols of good practices applied to the Jack mackerel fishery and verified that between 18.2-22.2% of the people of the crews were aware of good practice for reducing the discards (ATF- Chile, 2022).

IFOP has been publishing reports annually providing data of the programs that have been carrying out in compliance with the Plan and the results have showed that the strategy is working for some of the secondary species. Logbooks from this fishery reported a reduction of catches of chub mackerel over the years and from 2020 to 2022 catches of Humbold squid decreased from 50 to 15 tons (Table 25. No catches of the other secondary non-seabirds species were reported for the period.)

Table 25. Compilation of total catches data of non-birds species caught by the south-central Chilean Jack mackerel industrial purse seine fishery from 2019-2022, according to data provided on logbooks attached to reports of IFOP (Vega *et al*., 2020, 2021, 2022 and Ossa *et al*., 2023).

Latin name	Common name		2019		2020		2021		2022		Average	
	English	Spanish	Total catch (t)	% Total catch	Total catch (t)	% Total catch	Total catch (t)	% Total catch	Total catch (t)	% Total catch	Total catch (t)	% Total catch
Scomber japonicus	Chub mackerel	*Caballa*	952.945	0.0329	321.680	0.0066	641.417	0.0120	140.349	0.0017	514.098	1.3285
Dosidicus gigas	Humboldt squid	*Jibia*	0.000	0.0000	50.000	0.0010	0.000	0.0000	15.000	0.0002	16.250	0.0003

Scientific observers recorded 112 Peruvian pelican catches and 47 sooty shearwater catches in 863 fishing hauls over three years (2015-2017) [Vega *et al*., 2018]. Over the last five years (2019-2023), they observed only 8 Peruvian pelican catches and 1 sooty shearwater catch in 1,800 fishing hauls (Table 26). None catches of Albatross species or cape petrel/cape fulmar, secondary main species of this fishery, were reported by the observers for the last 5 years.

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch

Table 26. Catches of secondary seabird species caught by the central - southern Chilean Jack mackerel industrial purse seine fishery from 2019-2023 (table adapted from Vega *et al.*, 2024).

Common name	Scientific name	2019	2020	2021	2022	2023	Total
Peruvian pelican	*Pelecanus thagus*	4	0	0	3	1	8
Sooty shearwater	*Ardenna grisea*	1	0	0	0	0	1
Total number of hauls observed on board per year (*)		336	282	231	397	574	
Coverage of onboard observation per year (**)		10,8	10,1	9,3	14,4	17,2	

(*) Actual coverage in number of hauls

(**) Coverage of observers on board this fleet. It does not imply that incidental catch was observed in 100% of the hauls. Coverage is presented in this way, since Sernapesca does not officially record the hauls of each fishing trip.

There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and species involved, as a Plan for reducing discards and incidental catches for the fishery is implemented, leading to reductions in bycatch and discards and increase of awareness of the best practices, thus **SG 60 and 80 are met**. However, testing does not support high confidence that the strategy will work because there is a lack of specific, controlled tests for each measure and a general correlation data is available rather than causal evidence. ~~No evidence of anything more than practical testing has been presented in support of the existing management arrangements~~. Moreover, in the absence of some consideration of alternative scenarios and their outcomes, **SG 100 is not met**.

C	**Management strategy implementation**			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		~~Y~~ Yes	~~N~~ Yes

Rationale

There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).

As noted above, the evidence gathered by the IFOP observer programme ~~and summarised in section 3.6.1.1 of this report~~ demonstrates the effective implementation of the partial strategy: the catch rates of any non-target species in the Jack mackerel fishery are very low indeed, and the mortality rates for the out of scope "main" secondary species are also very low ~~(see the scoring rationale for PI 2.1.2 SIa above). The SG 60 and 80 requirements are therefore met.~~

~~In the absence of clearly defined management objectives, the partial strategy in place does not meet the SG 100 requirements.~~

The "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and Its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)" has been implemented and research programs focused on discards and incidental catches in the industrial Jack mackerel fishery and its accompanying fauna has been operating since 2015. Coverage of discards monitored trips for industrial vessels increased from an average of 5.7% in 2015-2016 to 8.45% in the last 4 years [2019-2022] (IFOP, 2017 and Vega *et al.*, 2020, 2021, 2022 and Ossa *et al.*, 2023). Quotas have been updated annually and a system of licences is in place for Humbold squid and south Pacific hake, which are secondary minor species for this fishery. The reasons for discards have been monitored, IRD has been implemented by SERNAPESCA since 2020; VMS, observer data,

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch

landings data (port sampling) and logbooks have been produced and published on IFOP reports. Several vessels have been using the TEL maneuver to avoid discards (IFOP, 2023). INPESCA (2023 and 2024) have noticed a decrease in the number of registered accompanied fauna species from 2020 to 2023 and suggested that this might be related with application of the rule of change of fishing area that has been incentivized through code of good practices, which consists in communicating to the rest of the fleet when there is presence of bycatch in fishing operations and search for another fishing zone. There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a), thus **SG 80 and 100 are met.**

d	**Shark finning**			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**Not relevant**	**Not relevant**	**Not relevant**

Rationale

Shark species are very infrequently caught and there is no evidence of shark finning taking place. This SI is therefore not relevant.

e	**Review of alternative measures to minimise mortality of unwanted catch**			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.
	Met?	**Y**	~~**N**~~ **Yes**	~~**N**~~ **Yes**

Rationale

There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate.

The only catch of "main" secondary species comprises several bird species: Peruvian pelican, sooty shearwater, albatross species, cape petrel/cape fulmar, all of which are unwanted catch. The minor secondary species include Humboldt squid, chub mackerel, blue flathead, snoek, south Pacific hake and Patagonian grenadier/hoki. The ~~discard reduction programme~~ research program focused on discards and incidental catches in the industrial Jack mackerel fishery and its accompanying fauna operating along the south-central Chilean coast and in international waters launched by IFOP in 2014 in response to the revised LGPA in 2013 represents part of a formal process for reducing the catch of non-target species that is due to result in the publication of a "Discard Plan" for the Jack mackerel fishery.

~~There is evidence that this review is underway, which is sufficient to meet the SG 60 requirements.~~
The revisions to the LGPA that were made in 2013 require (at Article 1º C) that "Every five years, the effectiveness and implementation of conservation and management measures will be evaluated". ~~At this point the initial review is still underway, and there is no evidence that it will be conducted regularly, so neither the SG 80 or SG 100 requirements are presently met.~~

Data collected by scientific observers and fishermen logbooks from 2015-2018 within the research program context were used to develop the "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)", which was authorized in 2019. The plan also

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch

incorporated information from other national fisheries and a bibliographic review regarding effectiveness and practicality of alternative measures to minimise unwanted catch.

The 2019 IFOP report presented the results of the program and proposals that were made to the Management Committee for the mitigation of the discards on the Jack mackerel fishery (Vega *et al*., 2019). One of the proposals that it was pointed that would have an influence on reducing discards of Humbold squid and chub mackerel, which are minor secondary species of this fishery, was the regulation of TEL, which was implemented later and proved to be efficient to reduce discards of Jack mackerel (INPESCA, 2023 and 2024). Through the following years of the research program, IFOPs reports have reviewed and recommended measures for reducing bycatches for other fisheries in Chile (artisanal sardine fishery operating in southern part of the Los Lagos region and the artisanal anchovy and Jack mackerel fishery that operates in the north central area of Chile). Another proposal that it was pointed by Vega *et al*. (2019) to be applied to three other minor secondary species of this fishery, snoek, south Pacific hake and Patagonian grenadier/hoki, was to allow landing or discarding of species that are not the target of the fishery, but that can be captured by purse seine gear. Two other proposals were done for snoek, which involved to review the possibility of giving a percentage of landing by trip to the species that are prohibited of landing and to establish an adaptive process for assigning a percentage of annual landing of species restricted or without fishing permit. The proposals for the south Pacific hake and Patagonian grenadier/hoki were not implemented. Nevertheless, Dec. Ex. N° 45/2020 approved up to a maximum of 0.5% threshold the catches of snoek for the Jack mackerel industrial and artisanal purse seine fishery, measured by weight, with respect to the total catch per month calendar, of each ship or vessel and a percentage of 0.25% was allowed for blue flathead by the same decree (although this species was not cited in Vega *et al.* 2019 proposal, but it is one minor secondary species for this fishery).

From 2014-2021 a program for dissemination of the results of the discard and bycatch research program and the contents of the reduction plan was developed with the fishermen. Stakeholders received timely and updated information on the research program and discussion of proposals for mitigation measures were held; elements that were incorporated in the documents that were subsequently sent to SUBPESCA. This allowed the exchange opinions and experiences about the fishing operation, implication of the program and finally contributions or fishermen's apprehensions about the proposed measures.

For the audit performed in July 2024, SERNAPESCA has provided a minute with the main regulations that have been approved in the context of discards and incidental catches on Jack mackerel fishery along the years as an indicator that reviews have been made for dealing with this issue (adjustments to the lists of species authorized as accompanying fauna and requirements, regulation on TEL maneuver, protocols for mandatory return to the sea of Chondrichthyes, IDR requirements, among others). SERNAPESCA (2024) stated that “the fishery management bodies have complied with all legal and regulatory requirements in matters of discarding and incidental fishing corresponding to the different phases of the process; diagnosis, reduction and control, either by allocating a budget and developing research projects to collect adequate technical background, establishing reduction plans and reviewing all associated regulations and finally implementing modern control mechanisms and sanctions for non-compliance in 100% of the fleet. This process has been built collaboratively with users through different bodies such as Management Committees, Scientific Committees, Industrial Associations”.

IFOP researchers have clarified during the audit that, due to the various measures and dissemination programs implemented over the years to reduce discards and incidental catches, along with the consistently low levels of unwanted catch in this fishery, there is no need for constant formal and well-established reviews of alternative mortality reduction strategies. They pointed out that the annual IFOP reports on discard programs, the regular updates to the lists of authorized accompanying species, the stock assessments, and the establishment of quotas by Management and Scientific Committees can all be seen as ongoing reviews of measures to minimize unwanted catch mortality.

INPESCA and CIAM have both prepared Manual of Good Practices for pelagic Chilean fishery in 2020 and 2021, respectively (INPESCA, 2020 and CIAM, 2021), being the INPESCA manual specific tailored to the fishery of this assessment. For elaborating these manuals, reviews were required and information was adapted to fit the specific conditions of the Chilean pelagic fishery, while incorporating observations from the stakeholders. As a part of the practices, there were protocols for the mitigation, handling and release of seabirds, as well as descriptions of the TEL maneuver and the rule of change of fishing area, which can be also applied to non-birds specimens. It was told to the assessment team that further initiatives were currently underway in

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch

research and development of fishing gear and strategies to reduce the risk of seabirds becoming entangled in purse seine nets (e.g., sound deterrent devices), as the client group is working closely to Birdlife and Albatross Task Force.

An external review process of the development of local protocols of good practices applied to the Jack mackerel purse seine fishery, such as the manual of good practices produced by INPESCA, was carried out in 2022 and a report was handled to the assessment team during the second surveillance. The objective of the work was to identify gaps in crew performance related to non-target species identification, rescue techniques, and safe handling, as well as to pinpoint suitable onboard sites for installing infrastructure to facilitate the release or care of injured marine fauna. Safety equipment onboard was also reviewed for these purposes, followed by recommendations aimed at reinforcing the good practices (ATF-Chile, 2022). ATF-Chile has presented material during the audit showing the actions made to comply with the recommendations pointed in the report developed in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA that was presented in the third surveillance. The actions included implementation of a rescue kit and safe container on the vessels for recover of the seabirds on board, trainings with the crew, production of technical documents, videos and guides of best practices and species identification.

INPESCA in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, released reports in 2023 and 2024 aiming to establish the level of progress that has been made in the application of the good practices manuals in the mitigation of discards and bycatch in the Jack mackerel fishery by analyzing data collected between 2020-2024. In the end of November 2023, a workshop was organized to provide the results to the crew, identify gaps and make recommendations.

INPESCA and ATF-Chile informed in the audit that they plan to keep annual workshops with the fishermen for dissemination and improvements of good practices to reduce bycatches and discards, which implies in reviews of measures to minimize unwanted catch mortality.

There have been a regular review of the potential effectiveness and practicality of alternative measures to minimize discards, through updates on regulations, discussions in dissemination programs and between different fishing bodies, bibliographic reviews, preparation of good practice manuals and reports analyzing the results of the programs, and annuals workshops are predicted covering the discards and incidental catches practices. Thus, there is a biennial review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate. **SG 60, 80 and 100 are met.**

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Overall Performance Indicator score

Overall Performance Indicator score	Applicable SGs/elements met			Overall score
	SG60	SG80	SG100	
	4 of 4	4 of 4	3 of 3	~~75~~ 95

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch
Condition number (if relevant)	**3**

5.2.3 PI 2.3.2 – ETP species management strategy

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
Scoring Issue	SG 60	SG 80	SG 100
a	**Management strategy in place (national and international requirements)**		
Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
Met?	~~Not relevant~~ Yes	~~Not relevant~~ Yes	~~Not relevant~~ No

Rationale

~~Although there are some international requirements for the protection of ETP species (such as the Agreement on the Consevation of Albatrosses and Petrels, ACAP), there are no equivalent national requirements in place at present. Thus, there are not both national legislation and international agreements in place that establish requirements for the protection of ETP species. This SI is therefore not relevant and does not need to be scored~~.

There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.

MSC definitions of "measures", "partial strategy" and "strategy" which are outlined in MSC Fisheries Standard v2.01 §Table SA8: Principle 2 Phrases as follows:

"Measures" are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.

A "strategy" represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

A "comprehensive strategy" (applicable only for ETP component) is a complete and tested strategy made up of linked monitoring, analyses, and management measures and responses.

Chile is a member country of several agreements for the conservation of ETP species such as Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on Biological Diversity (CBD), Convention on Migratory Species (CMS), Agreement on the Conservation of Albatrosses and Petrels (ACAP), International Convention for the Regulation of Whaling (ICRW), Ramsar Convention on Wetlands, Agreement on Measures for the Conservation of Sharks in the South Pacific (SPIMA), Western and Central Pacific Fisheries Commission, CODEFF BirdLife international, Convención de las Naciones Unidas por los Derechos del Mar (CONVEMAR) and different international agreements with countries around the world to preserve the marine life as "Chile - United States Memorandum of Understanding on Cooperation for the Conservation and Management of Terrestrial and Marine Protected Areas" under which the sea lion is also protected.

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

The LGPA establishes the obligation to return marine mammals, reptiles, penguins, and other sea birds to the sea, unless they are severely hurt or injured, in which case they should be retained on board in order to be sent to a rehabilitation centre for hydrobiological species.

There are 70 protected species in Chile, according to the Decree N ° 225 of 1995, amended by Decree N° 135 of 2005 and N°434 of 2007, all from Ministry of Economy. The species are protected by a total ban for a period of 30 years, from November 11th, 1995, and until November 10th, 2025.

The industrial Jack mackerel fishery is subject to management controls that prevent operations within 5 nautical miles of the coast, and the fishers used oceanographic data to identify areas where Jack mackerel are likely to be caught. As a larger pelagic fish, Jack mackerel do not attract the numbers of seabirds that congregate around the fisheries for smaller pelagic fish, such as anchovies and sardines. The ETP species that was recorded to interact with the Jack mackerel fishery most frequently is the South American sea lion. Fishermen reported that the sea lions actively enter the nets to catch the encircled fish, and leap over the headline of the net to avoid the pump used to recover fish. The sea lions that were reported to be killed had either become entangled in the net and then the machinery aboard the vessel or in the fish pump. Nevertheless, the level of mortality both as a proportion of the interactions observed and the sea lion population is usually very small.

The ETPs that were identified for this fishery in the initial assessment were based essentially on the records of scientific observers in 1,165 fishing hauls over 2015-2016 were: kelp gull, pink-footed shearwater, black-browed albatross, grey headed albatross, white chinned petrel, leatherback turtle, northern storm petrel and South American sea lion.

The "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)" implements measures to minimize interactions and catches of seabirds, mammals and reptiles. The Plan includes a robust monitoring program, training sessions, dissemination programs, and a code of good practices aimed at reducing incidental catches. It also ensures compliance with best practices, such as changing fishing areas and communicating with the rest of the fleet when incidental catch occurs, and avoiding high bycatch zones. The measures applied for seabirds, mammals and reptiles included preparation and compliance with mandatory protocols to deter these animals retained in the purse seine; preparation and formalization of protocols of identification of species, safe handling on board, registration and release the animals seeking their survival and suspend fishing hauls for discarding catches to release/return cetaceans and reptiles. The measures did not focus on any species in particular, except one for *Ardenna* species. It was proposed to evaluate the feasibility of carrying out spatial-temporal management for *Ardenna* species based on indicators considering certain delimited areas, for specific periods and/or times. It was not identified the implementation of this measure, nevertheless, Decree 21/2020 approved a plan for the recovery, conservation and management of the pink-footed shearwater. The duration of this plan is 20 years and several actions has been implemented, according to the minutes of the follow-up meetings provided by Ministry of Environment through de Chilean Transparency Portal in August 2024 (MMA, 2023 and 2024).

MMA (2024) showed that the NGO Oikonos has conducted research on the pink-footed shearwater and the interaction of fisheries. They identified migration patterns of the species and the interaction of fisheries with pink-footed shearwater in national territory. In addition, areas of overlap between feeding areas and fisheries have been identified. Complementing this research, a collection of testimonies from artisanal fishermen and their interaction with pink-footed shearwater has been carried out and alternatives were identified to mitigate the magnitude of the impact of bycatch. Luis Cocas, the representative of SERNAPESCA stated that "there is information that would allow determining feeding areas of the pink-footed shearwater, but development and analysis are needed to obtain more precise conclusions" (MMA, 2024).

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

A protocol for ensure the adequate record of images with the use of IRD in industrial purse seine fishery of south-central Chile has been approved (RES.EX. N°2738/2019) and currently all industrial vessels have implemented the device on the vessels (INPESCA, 2023).

In the last seven years (2017-2023), in 2,923 fishing hauls recorded by scientific observers, incidental catches of the ETP birds have been minimal (Vega *et al*., 2024) (Table 28), especially when comparing with the numbers from 2015-2016, when 1,165 fishing hauls were recorded (Vega *et al.*, 2017). Catches of kelps gull decreased from 224 to 20, while pink-footed shearwater, from 13 to 4 (Vega *et al.,* 2017 and 2024). About 838 sea lions were caught, and 11 have died in the last seven years, while in 2015-2016, 1,751 sea lions were caught and 14 died (Table 29).

Table 27. Catches of the ETP species identified in the initial assessment caught by the south-central Chilean Jack mackerel industrial purse seine fishery from 2019-2023 (table adapted from Vega *et al*., 2024).

Nombre común	Nombre científico	2017	2018	2019	2020	2021	2022	2023	Total
Kelp gull	*Larus dominicanus*	18	0	2	0	0	0	0	20
Black-browed albatross	*Thalassarche melanophris*	0	1	0	0	0	0	0	1
Pink-footed shearwater	*Ardenna creatopus*	1	0	1	1	0	0	1	4
White chinned petrel	*Procellaria aequinoctialis*	0	1	0	0	0	0	0	1
Leatherback turtle	*Dermochelys coriacea*	0	0	0	0	0	0	1	1
South American sea lion	*Otaria flavescens*	256	265	62	12	47	147	49	838
Total number of hauls observed on board per year (*)		410	713	336	262	231	397	574	
Coverage of onboard observation per year (**)		16,7	18,3	10,8	10,1	9,3	14,4	17,2	

(*) Actual coverage in number of hauls

(**) Coverage of observers on board this fleet. It does not imply that incidental catch was observed in 100% of the hauls. Coverage is presented in this way, since Sernapesca does not officially record the hauls of each fishing trip.

Table 28. Incidental mortality of ETP species identified in the initial assessment caught by the south-central Chilean Jack mackerel industrial purse seine fishery from 2019-2023 (table adapted from Vega *et al*., 2024).

Nombre común	Nombre científico	2017	2018	2019	2020	2021	2022	2023	Total
Kelp gull	*Larus dominicanus*	1	0	0	0	0	0	0	1
Black-browed albatross	*Thalassarche melanophris*	0	1	0	0	0	0	0	1
Pink-footed shearwater	*Ardenna creatopus*	1	0	1	1	0	0	1	4
White chinned petrel	*Procellaria aequinoctialis*	0	1	0	0	0	0	0	1
South American sea lion	*Otaria flavescens*	7	2	0	0	0	1	1	11

Based on the comprehensive measures implemented in the "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)" and the low catches of ETP in recent years, there is a strategy in place for managing the UoA's impact on ETP species, thus **SG 60**

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

and 80 is met. However, the strategy is not designed to achieve above national and international requirements for the protection of ETP species, **SG 100 is not met.**

b	**Management strategy in place (alternative)**			
	Guide post	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	~~¥~~ NA	~~₦~~ NA	~~₦~~ NA

Rationale

~~The terms "measures" and "strategy" used in this SI are defined in the MSC Fisheries Certification Requirements v 2.0 (see the FCR text reproduced in the rationale for PI 2.1.2 SIa). The additional term "comprehensive strategy" is used at SG 100 for this SI, which is defined as:~~

~~A "comprehensive strategy" (applicable only for ETP component) is a complete and tested strategy made up of linked monitoring, analyses, and management measures and responses.~~
~~MSC CR v 2.0 Table SA8~~

~~As noted in the scoring comments for PI 2.2.2 above, the industrial Jack mackerel fishery is subject to management controls that prevent operations within 5 nautical miles of the coast, and the fishers used oceanographic data to identify areas where Jack mackerel are likely to be caught. As a larger pelagic fish, Jack mackerel do not attract the numbers of seabirds that congregate around the fisheries for smaller pelagic fish such as anchovies and sardines.~~

~~The ETP species that was recorded to interact with the Jack mackerel fishery most frequently is the South American Sea Lion, *Otaria flavescens*. Fishermen reported that the sea lions actively enter the nets to catch the encircled fish, and leap over the headline of the net to avoid the pump used to recover fish. The sea lions that were reported to be killed had either become entangled in the net and then the machinery aboard the vessel or in the fish pump. Nevertheless, the level of mortality both as a proportion of the interactions observed and the sea lion population is very small.~~
~~The evidence available for the sea lions and the other 6 ETP species indicates that the partial strategy in place (in the form of the measures that require fishing in offshore areas and targeting Jack mackerel rather than smaller pelagic species) results in a very low level of mortality of ETP species. The evidence of low levels of mortality meet associated with these management measures meet the SG 60 requirements for this SI.~~

~~The SG 80 requirements specify that there should be a strategy in place. The revision of the LGPA in 2013 created a requirement to develop a Discard Plan to manage both the level of discarding from Chilean fisheries, and also to address the catch of non-target species, including ETP species (Article 1º C(i)). The IFOP observer programme has gathered the data required to inform this Discard Plan. Nevertheless, in the absence of this Discard Plan the SG 80 and SG100 requirements are not presently met.~~

According to SA3.11.2.1 of MSC Fisheries Standard v2.01, where there are requirements for protection and rebuilding provided through national ETP legislation or international agreements, the team shall score scoring only issue a. Thus, this issue b is not applicable.

c	**Management strategy evaluation**			
	Guide post	The measures are **considered likely** to work, based on **plausible argument** (e.g., general	There is an **objective basis for confidence** that the measures/strategy will work,	The strategy/comprehensive strategy is mainly based on information directly about the

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
	experience, theory or comparison with similar fisheries/species).	based on **information** directly about the fishery and/or the species involved.	fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.
Met?	¥ Yes	¥ Yes	₦ No

Rationale

~~The information from the IFOP observer programme conducted in the UoA shows that there is a very low level of interaction between the Jack mackerel purse seine fishery and ETP species, and that the level of ETP species mortality is very low. Information is available on the status of the ETP species concerned (see review in section 3.6.1.3.2 of this report).~~
~~The information available is directly from the fishery and for the species involved, and shows that the measures in place are consistently achieving a low level of adverse interaction with ETP species, meeting the SG 60 and 80 requirements.~~

~~In the absence of the Discard Plan that will be based on this information, the SG 100 requirements are not presently met~~.
There is an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved.

Since 2015, a research program focused on discards and incidental catches in the industrial Jack mackerel fishery and its accompanying fauna has been operating along the central southern Chilean coast and in international waters. Scientific observers have been working onboard vessels to monitor bycatch levels and interactions with seabirds, marine mammals, and sea turtles, as well as associated non-target species. Fishermen have also contributed data through logbooks and workshops to discuss possible measures for reducing discards. The collected data from 2015-2018 were used to develop the "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and Its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)." An evaluation of the data obtained by the scientific observers from 2015-2018 identified the species associated with the fishing activity, based on their capture, mortality rates and the type of interaction with the fishery. This variability was linked to spatiotemporal and environmental patterns, considering the vulnerability or risk to the populations of the most frequently caught species. Following this, a bibliographic review of national and international fisheries strategies was conducted to find applicable measures for the purse seine fleet operating in the central southern region.

The plan contained general measures for reducing the incidental catches on the fishery, such as establishing programs of monitoring, training and dissemination of measures, application of IRD for record and supervise all discarding, compliance with the rule of change of fishing area (move on technique) and communication to the rest of the fleet when there is presence of incidental fishing in fishing operations, maintain scientific observers on boards, compulsory logbook records. Several measures and recommendations of good practices for reducing incidental catches of birds were included on the Plan, but they did not focus on any bird species in particular, except one for *Ardenna* species.

Studies have shown that the dissemination programs of good practices on discards have been effective. INPESCA (2023 and 2024) monitored the Jack mackerel industrial purse seine fleets of south-central Chile from 2020-2023 and noticed a low level of incidental catches. It was also reported an increase of the release of sea lions alive from 44.9% in 2020 to 98.3% in 2022 (INPESCA, 2023). ATF-Chile in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, carried out in 2022 an external review process of the development of local protocols of good practices applied to the Jack mackerel fishery and verified that between 18.2-22.2% of the people of the crews were aware of good practice for reducing the incidental catches of birds (ATF- Chile, 2022).

IFOP has been publishing reports annually providing data of the programs that have been carrying out in compliance with the Plan and the results have showed that the strategy is working. In the last seven years (2017-2023), in 2,923 fishing hauls

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

recorded by scientific observers, incidental catches of the ETP birds have been minimal (Vega *et al*., 2024), especially when comparing with the numbers from 2015-2016, when 1,165 fishing hauls were recorded (Vega *et al*., 2017). Catches of kelps gull decreased from 224 to 20, while pink-footed shearwater, from 13 to 4 (Vega *et al*. 2017 and 2024). About 838 sea lions were caught, and 11 have died in the last seven years, while in 2015-2016, 1,751 sea lions were caught and 14 died.

There is some objective basis for confidence that the partial strategy will work, based on quantitative information directly about the fishery and species involved, as a plan for reducing discards and incidental catches for the fishery is implemented, leading to reductions in bycatch and discards and increase of awareness of the best practices, thus **SG 60 and 80 is met.** However, testing does not support high confidence that the strategy will work because there is a lack of specific, controlled tests for each measure and a general correlation data is available rather than causal evidence. Thus, **SG 100 is not met**.

d	**Management strategy implementation**			
	Guide post		There is some **evidence** that the measures/strategy is being implemented successfully.	There is **clear evidence** that the strategy/comprehensive strategy is being implemented successfully and **is achieving its objective as set out in scoring issue (a) or (b).**
	Met?		~~¥~~ **Yes**	~~₦~~ **Yes**

Rationale

There is clear evidence that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).

There is good evidence from VMS monitoring of the fishery that the vessels operate in areas further than 5 nautical miles from the shore, as required, and the catch composition shows that very few non-target fish species are caught. The clean catch and offshore location of the fishery is one of the measures thought to result in a low level of interaction with ETP bird species.

~~The evidence gathered by the IFOP observers aboard UoA vessels for a 2 year period provides evidence of a low level of interaction with ETP species, and demonstrates that the measures are being implemented successfully, which satisfies the SG 80 requirements.~~

~~In the absence of a clear strategy to manage interactions with ETP species, SG 100 is not presently met.~~

The "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and Its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)" has been implemented and research programs focused on discards and incidental catches in the industrial Jack mackerel fishery and its accompanying fauna has been operating since 2015. VMS, observer data, landings data (port sampling) and logbooks have been produced and published on IFOP reports. The reasons for discards have been monitored, IRD has been implemented by SERNAPESCA since 2020; VMS, observer data, landings data (port sampling) and logbooks have been produced and published on IFOP reports. Several vessels have been using the TEL maneuver to avoid discards (IFOP, 2023). INPESCA (2023 and 2024) have noticed a decrease in the number of registered accompanied fauna species from 2020 to 2023 and suggested that this might be related with application of the rule of change of fishing area that has been incentivized through code of good practices, which consists in communicating to the rest of the fleet when there is presence of bycatch in fishing operations and search for another fishing zone. Studies have shown that the dissemination programs of good practices on discards have been effective (INPESCA, 2023, 2024 and ATF- Chile, 2022). A reduction of mortalities of the ETP species and mortality of sea lions have been verified.

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

SG80 and SG 100 are met because the "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel" has been implemented successfully, as indicated by increased discard monitoring, IRD implementation, effective good practice dissemination programs that have reduced catches of ETP species and mortalities of sea lions.

e	**Review of alternative measures to minimize mortality of ETP species**			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	~~¥~~ Yes	~~N~~ Yes	~~N~~ Yes

Rationale

~~The discard reduction programme launched by IFOP in 2014 in response to the revised LGPA in 2013 represents part of a formal process for reducing the catch of non-target species (including ETP species) that is due to result in the publication of a "Discard Plan" for the Jack mackerel fishery.~~

~~There is evidence that this review of catch composition and management measures is underway, which is sufficient to meet the SG 60 requirements.~~

~~The revisions to the LGPA that were made in 2013 require (at Article 1º C) that "Every five years, the effectiveness and implementation of conservation and management measures will be evaluated". At this point the initial review is still underway, and there is no evidence that it will be conducted regularly, so neither the SG 80 or SG 100 requirements are presently met.~~

There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.

Since 2015, a research program focused on discards and incidental catches in the industrial Jack mackerel fishery and its accompanying fauna has been operating along the central southern Chilean coast and in international waters. Data collected by scientific observers and fishermen logbooks from 2015-2018 within the research program context were used to develop the "Plan for the Reduction of Discards and Incidental Catches in the Industrial Fishery of Jack Mackerel and its Accompanying Fauna between the Regions of Valparaíso to Los Lagos and International Waters under the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO)", which was authorized in 2019. The plan also incorporated information from other national fisheries and a bibliographic review regarding effectiveness and practicality of alternative measures to minimise unwanted catch.

The 2019 IFOP report presented the results of the program and proposals that were made to the Management Committee for the mitigation of incidental catches of mammals, reptiles and birds on the Jack mackerel fishery (Vega *et al*., 2019). Through the following years of the research program, IFOPs reports have reviewed and recommended measures for reducing bycatches for other fisheries in Chile (artisanal sardine fishery operating in southern part of the Los Lagos region and the artisanal anchovy and Jack mackerel fishery that operates in the north central area of Chile).

From 2014-2021 a program for dissemination of the results of the discard and bycatch research program and the contents of the reduction plan was developed with the fishermen. Stakeholders received timely and updated information on the research

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

program and discussion of proposals for mitigation measures were held; elements that were incorporated in the documents that were subsequently sent to SUBPESCA. This allowed the exchange opinions and experiences about the fishing operation, implication of the program and finally contributions or fishermen's apprehensions about the proposed measures.

For the audit performed in July 2024, SERNAPESCA has provided a minute with the main regulations that have been approved in the context of discards and incidental catches on Jack mackerel fishery along the years as an indicator that reviews have been made for dealing with this issue (adjustments to the lists of species authorized as accompanying fauna and requirements, regulation on TEL maneuver, protocols for mandatory return to the sea of chondrichthyes, IDR requirements, among others). SERNAPESCA (2024) stated that "the fishery management bodies have complied with all legal and regulatory requirements in matters of discarding and incidental fishing corresponding to the different phases of the process; diagnosis, reduction and control, either by allocating a budget and developing research projects to collect adequate technical background, establishing reduction plans and reviewing all associated regulations and finally implementing modern control mechanisms and sanctions for non-compliance in 100% of the fleet. This process has been built collaboratively with users through different bodies such as Management Committees, Scientific Committees, Industrial Associations".

IFOP researchers have clarified during the audit that, due to the various measures and dissemination programs implemented over the years to reduce discards and incidental catches, along with the consistently low levels of unwanted catch in this fishery, there is no need for constant formal and well-established reviews of alternative mortality reduction strategies. They pointed out that the annual IFOP reports on discard programs, the regular updates to the lists of authorized accompanying species, the stock assessments, and the establishment of quotas by Management and Scientific Committees can all be seen as ongoing reviews of measures to minimize unwanted catch mortality.

INPESCA and CIAM have both prepared Manual of Good Practices for pelagic Chilean fishery in 2020 and 2021, respectively (INPESCA, 2020 and CIAM, 2021), being the INPESCA manual specific tailored to the fishery of this assessment. For elaborating these manuals, reviews were required and information was adapted to fit the specific conditions of the Chilean pelagic fishery, while incorporating observations from the stakeholders. As a part of the practices, there were protocols for the mitigation, handling and release of birds, marine mammals and reptiles, as well as descriptions of the TEL maneuver and the rule of change of fishing area. It was told to the assessment team that further initiatives were currently underway in research and development of fishing gear and strategies to reduce the risk of seabirds becoming entangled in purse seine nets (e.g., sound deterrent devices), as the client group is working closely to Birdlife and Albatross Task Force.

An external review process of the development of local protocols of good practices applied to the Jack mackerel purse seine fishery, such as the manual of good practices produced by INPESCA, was carried out in 2022 by ATF-Chile in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA and a report was handled to the assessment team during the second surveillance. The objective of the work was to identify gaps in crew performance related to non-target species identification, rescue techniques, and safe handling, as well as to pinpoint suitable onboard sites for installing infrastructure to facilitate the release or care of injured marine fauna. Safety equipment onboard was also reviewed for these purposes, followed by recommendations aimed at reinforcing the good practices (ATF-Chile, 2022).

ATF-Chile has presented material during the audit showing the actions made to comply with the recommendations pointed in the report developed in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA that was presented in the third surveillance. The actions included implementation of a rescue kit and safe container on the vessels for recover of the seabirds on board, trainings with the crew, production of technical documents, videos and guides of best practices and species identification.

INPESCA in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, released reports in 2023 and 2024 aiming to establish the level of progress that has been made in the application of the good practices manuals in the mitigation of discards and bycatch in the Jack mackerel fishery by analysing data collected between

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

2020-2024. In the end of November 2023, a workshop was organized to provide the results to the crew, identify gaps and make recommendations.

INPESCA and ATF-Chile informed in the audit that they plan to keep annual workshops with the fishermen for dissemination and improvements of good practices to reduce bycatches and discards, which implies in reviews of measures to minimize unwanted catch mortality.

There have been a regular review of the potential effectiveness and practicality of alternative measures to minimize discards, through updates on regulations, discussions in dissemination programs and between different fishing bodies, bibliographic reviews, preparation of good practice manuals and reports analyzing the results of the programs, and annuals workshops are predicted covering the discards and incidental catches practices. Thus, there is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate. **SG 60, 80 and 100 are met.**

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PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species

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Overall Performance Indicator score

Overall Performance Indicator score	Applicable SGs/elements met			Overall score
	SG60	SG80	SG100	
	3 of 3	4 of 4	1 of 4	~~75~~ 85
Condition number (if relevant)				**4**

5.2.4 Updated performance Indicator and Principle-level scores

Based on the scores originally awarded during the original assessment and/or scores updated during this surveillance audit (PI 1.2.2 rescored from 75 to 80, PI 2.2.2 was rescored from 75 to 95 and 2.3.2 from 75 to 85 section 5.2), the Performance Indicator (PI) and Principle-level scores are as outlined below, in summary:

- The certified UoA continues to achieve an overall weighted Principle-level score of ≥80 for each MSC Principle.
- None of the PIs has been scored <60 against any Performance Indicator.

Therefore, the UoA remains in overall compliant and as such is eligible for MSC certification. The conditions which have the deadline for year 4 have been closed and no remaining open conditions are in this fourth surveillance audit. Although in the ACDR for re-certification for this same fishery a new condition on 1.2.2 will likely be opened and further discussed in the annual harmonisation meetings.

In the tables below the assessment team shows the updated results of this surveillance audit (Table 29 and Table 30).

Table 29. Updated PI-level scores for each Unit of Certification.

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

Table 30. Overall Principle scores at Surveillance year 4.

Overall weighted Principle-level scores	Score
Principle 1 - Target species	91.7
Principle 2 - Ecosystem	87.3
Principle 3 - Management	91.5

5.3 Conditions

5.3.1 Progress against conditions at surveillance year 4

Note that the conditions have met the deadlines and are marked at closed at the surveillance audit year 4. Please see the tables below for more details.

- **Condition 1**

Table 31. Condition 1.

Performance Indicator	1.2.1 Harvest Strategy	
Score	75	
Justification	Chilean fisheries regulations forbid discarding. The UoA has a monitoring system that assists the captain to avoid areas with high concentration of juvenile (www.fishtrack.com), which is the main reason for discarding due to the lack of market value for smaller fish. Moreover, as evidenced during the site visit, discard is negligible. Therefore, it is possible to conclude that there are alternative measures to minimize UoA-related mortality of unwanted catch of the target stock. Therefore, **SG 60 is met**. A specific regulation on discards in the Chilean Jack mackerel fishery is under preparation. One of the roles of the enhanced observer program being formulated by SPRFMO is to identify levels of discard. In Chile, two action plans are being implemented to respond to the issues of discards quantification and minimization. The SPRFMO is in the process of designing the observer program. While there are proposals in the Chilean Action Plans to review the effectiveness of the steps to reduce potential discards, as yet there is no evidence to show that there has been a regular review. Therefore **SG 80 is not met**.	
Condition	The client shall ensure by the ~~third~~ fourth surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	
Condition start	The condition was set up at the full assessment when the PCR was posted in April 2019.	
Condition deadline	As part of this surveillance audit, and as allowed by MSC Derogation 6, the deadline and associated milestones for this condition have all been extended by 12 months. The new deadline for this condition is the fourth surveillance audit (October 2023).	
Milestones	~~**At the first surveillance audit**~~ At the second surveillance audit: the client shall provide evidence to show that a review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock is being carried out. Resulting score: 75 ~~**At the second surveillance audit**~~ At the third surveillance audit: the client shall provide evidence to show that a review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock has been carried out. Resulting score: 75 ~~**At the third surveillance audit**~~ At the fourth surveillance audit: the client shall provide evidence to show that alternative measures to minimize UoA related mortality of unwanted catch of the target stock are being implemented as appropriate. Resulting score: 80	
Progress on Condition	Following the 12-month extension to this condition as part of this surveillance audit, and as required by MSC Derogation 6, the associated milestones have been extended by 12 months.	
	Year 1	At the first annual audit the team received minutes of the Fishery Management Committee meetings providing evidence that the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock has been discussed. The team were also given new reports from the IFOP discard program as well as reports on the level of discards in each trip of client vessels with an explanation of the motive for discard and the estimated quantity discarded. The team received reports on the level of discards in each trip of client vessels with an explanation of the motive for discard and the estimated quantity discarded. Finally, the team were provided with a manual of good practices for the Jack mackerel fishery. This report assesses the issue of Jack mackerel discards and the

Table 31. Condition 1.

		need to reduce discards and the associated options. The manual considers alternatives measures to reduce discards, their potential effectiveness and the practicality of implementation. This document was presented within the framework of the Management Committee and was also presented at the ORP-PS as a national document that was extended to the scientific committee of the Convention. It is expected that any measures would be implemented in the following 12-month period. The manual also will define responsibilities and will identify indicators of successful implementation. During the surveillance assessment audit, the team examined new information about the new discard's reduction plan for the Jack mackerel (approved on April 30, 2019) where there is evidence that alternatives measures were examined to reduce discards of the target species. Subsequent developments such as the manual of good practices and the latest report from the monitoring program of discards on the Jack mackerel fishery attest that there have been instances where evaluation of alternative measures to reduce discards of the target species in the Jack mackerel fishery has been done from 2018-2020.
	Year 2	At the second annual audit the team received minutes of the Fishery Management Committee meetings providing evidence that the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock has been discussed. The team were also given new reports from the IFOP discard program as well as reports on the level of discards in each trip of client vessels with an explanation of the motive for discard and the estimated quantity discarded. The team received reports on the level of discards in each trip of client vessels with an explanation of the motive for discard and the estimated quantity discarded.
	Year 3	At the third annual audit the team received minutes of the Fishery Management Committee meetings providing evidence that the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of the target stock has been discussed. The team were also given new reports from the IFOP discard program as well as reports on the level of discards in each trip of client vessels with an explanation of the motive for discard and the estimated quantity discarded. The team received reports on the level of discards in each trip of client vessels with an explanation of the motive for discard and the estimated quantity discarded.
	Year 4	According to discard reduction plan for Chilean Jack mackerel (SUBPESCA, 2019), there is an annual review of impact of unwanted catch on the status of target and non-target species. SUBPESCA (2019) proposed different alternative options to reduce unwanted catch on target, and non-target species as well as metrics to evaluate effectiveness of the management measures to reduce unwanted catches. These proposed evaluations of the management measures to mitigate bycatch impact are set to be conducted every year (Vega *et al*., 2019, 2020, 2021, 2022; Ossa *et al*., 2023). One of the specific objectives in the Jack mackerel monitoring of discards program reports is to propose alternatives for changes, regulatory, technological, operational, market, cultural, user training, or other modifications, whose implementation promotes the reduction of discard and bycatch, as well as to evaluate the level of implementation and effectiveness of the mitigation measures contained in the enacted reduction plans. There is an ongoing process of reviewing causes for the Jack mackerel discards as target species in the south-central industrial Jack mackerel purse seine fishery (Vega *et al*., 2019, 2020, 2021, 2022; Ossa *et al*., 2023; INPESCA, 2023). In this context, the discard and bycatch mitigation plan that SUBPESCA has issued for this fishery is analysed in detail and it is considered as an analysis criterion whether

Table 31. Condition 1.		
		or not the declared cause corresponds to the causes that the plan authorized for this fishery. Thus, for this fishery in the research program, a list of general causes is mostly considered, and since this fishery has a monitoring plan for mitigation measures, the criterion indicates the level of compliance with the causes according to the stipulations of the respective plan (Vega *et al*., 2019; Ossa *et al*., 2023; INPESCA, 2023). Finally, stock status is usually assessed every year and scientific advice is provided for catch options and alternatives to unwanted catch. The Advisory Committee consultative process leads to a consensus recommendation on TACs and other conservation and management measures to reduce UoA-related mortality of unwanted catch of the target stock. As of 2018, estimates of discarding resources managed with quotas have been considered in the process of establishing annual global catch quotas for Chilean fisheries. More details are given in the rescoring table in section 5.2.1.
Progress status	The condition is now closed	
Remedial action	*NA*	
Additional information	*NA*	

– **Condition 3**

Table 32. Condition 3.	
Performance Indicator	PI 2.2.2 Secondary Species management
Score	75
Justification	The only catch of "main" secondary species comprises several bird species, all of which are unwanted catch. The discard reduction programme launched by IFOP in 2014 in response to the revised LGPA in 2013 represents part of a formal process for reducing the catch of non-target species that is due to result in the publication of a "Discard Plan" for the Jack mackerel fishery. There is evidence that this review is underway, which is sufficient to meet the SG 60 requirements. The revisions to the LGPA that were made in 2013 require (at Article 1º C) that "Every five years, the effectiveness and implementation of conservation and management measures will be evaluated". At this point the initial review is still underway, and there is no evidence that it will be conducted regularly, **so neither the SG 80 or 100** requirements are presently met.
Condition	The client shall ensure by the ~~third~~ fourth surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species and evidence shall be presented to show that they are implemented as appropriate.
Condition start	The condition was set up at the full assessment when the PCR was posted in April 2019.
Condition deadline	As part of this surveillance audit, and as allowed by MSC Derogation 6, the deadline and associated milestones for this condition have all been extended by 12 months. The new deadline for this condition is the fourth surveillance audit (October 2023).
Milestones	As outlined above, condition milestones have been extended as per MSC Derogation 6. The review of alternative measures is independent of the management strategy/partial strategy and is based on 1) whether or not alternative measures to reduce the fishery's impacts exist, and 2) if they do, whether or not it would be practicable to implement them. With this in mind, the condition could be closed early if 1) no practicable alternative measures are identified or 2) alternative measures are identified and implemented and 3) there is a commitment to conduct another review of alternative measures within the timeframe defined by the MSC definition of 'regular'.
Progress on Condition	~~**At the first surveillance audit**~~ At the second surveillance audit: the client shall provide evidence to show that a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch is being carried out. Resulting score: 75 ~~**At the second surveillance audit**~~ At the third surveillance audit: the client shall provide evidence to show that a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch has been carried out.

Table 32. Condition 3.

	Resulting score: 75 ~~**At the third surveillance**~~ At the fourth surveillance audit: the client shall provide evidence to show that alternative measures to minimize UoA related mortality of unwanted catch are being implemented as appropriate. Resulting score: 80	
	Year 1	As a part of the surveillance activities the assessment team has reviewed the classification of the ETP species affected by this PI. Finally, as a result of this review, one species assessed as secondary main, Kelp gull, has been moved to ETP species as it meets the MSC criteria to be classified as ETP (more details in background section). The rest of the seabird's species previously identified as Secondary main have remained in this section. By the year 1 and during the surveillance audit, the assessment team was provided with the Good Practices Manual developed by INPESCA as a part of the client action plan defined by the fishery during the full assessment. In the Good Practices Manual, it can be seen that measures to reduce the incidental catches of seabirds and other non-target species have been incorporated and other will be implemented in the next 12 months. As a part of these measures, there are protocols for the mitigation, handling and release of seabirds. Further, Initiatives are currently underway in research and development of fishing gear and strategies to reduce the risk of seabirds becoming entangled in purse seine nets (e.g., sound deterrent devices) by chasing them away when they approach the net. The development of these initiatives takes place in parallel with the development of the current good practice manual. The client group is working closely to Birdlife and Albatross Task Force to ensure that the mitigation measures are successfully implement in the fishery. During the site visit, in the meeting held by the assessment team with INPESCA and IFOP, it was told that measures and how they are working will be monitored annually. Actually, the Reduction Plan of bycatch for the fishery has shown the results of the observer program and the interactions reported with seabirds. Results from 2016, 2017 and 2018 have shown a decreased in the total interactions and mostly with all the species assessed.
	Year 2	During the second annual surveillance the team received a report developed by ATF-Chile in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, where is carrying out an external review process of the development of local protocols of good practices applied to the Jack mackerel fishery, such as the Manual of Good Practices for Fishing Jack Mackerel During this work the objective has been to identify gaps in the performance of the crews in procedures for the identification of non-target species, techniques of rescue and safe handling of the same and detect suitable sites on board for the installation of infrastructure, which facilitates the release or maintenance of species of injured marine fauna, in turn the safety material that each ship has for these purposes has been reviewed, and then make recommendations, which allow to reinforce the mission of the MGPJ, in order to advance from the fleets in the improvement of practices on board in the reduction of impacts on the ecosystem as part of the MSC certification principles. During the site visit, in the meeting held by the assessment team with INPESCA and IFOP, it was told that measures and how they are working will be monitored annually. Actually, the report of Reduction Plan of bycatch for the fishery has shown the results of the observer program and the interactions reported with seabirds. Results from 2018, 2019 2020 and 2021 have shown a decrease in the total interactions and mostly with all the species assessed.
	Year 3	During the third annual surveillance the team received a report developed by INPESCA in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, Titled "Technical Report: Monitoring of discard and ETP species in the Jack mackerel fishery of south-central Chile, 2020-2023".In this report INPESCA concluded the following: *The opinion that the team of*

Table 32. Condition 3.

		researchers of INPESCA has in relation to compliance with the mitigation measures of the discard reduction plan for the administration in the Jack mackerel fishery, is very positive, the background presented in this report indicates that the company has made an important effort to implement actions to mitigate discard and reduce bycatch, Although it is necessary to continue learning about the proposed measures to make the necessary adjustments that will go in the optimization of the actions proposed, for example in the manual of good practices, important advances are observed that are evidenced in the reduction of discard and incidental fishing that mark a good starting point in the implementation of the Discard Law (Law 20,625). Thus, there is evidence that a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch has been carried out.
	Year 4	During the audit performed in July 2024, INPESCA presented an updated version of the "Technical Report: Monitoring of discard and ETP species in the Jack mackerel fishery of south-central Chile, 2020-2023", including data of 2023 (INPESCA, 2024), as the older version considered only data from 2020-2022. No major changes on the results were verified and the main conclusion remained the same: INPESCA research team views the company's efforts to implement discard reduction measures in the Jack mackerel fishery positively, noting significant progress, though ongoing adjustments are needed to optimize these actions. INPESCA also provided a register of a workshop that was organized in November 2023 to provide the results of the report to the crew, identify gaps and make recommendations. ATF-Chile has presented material during the audit showing the actions made to comply with the recommendations pointed in the report developed in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA that was presented in the third surveillance. The actions included implementation of a rescue kit and safe container on the vessels for recover of the seabirds on board, trainings with the crew, production of technical documents, videos and guides of best practices and species identification. SERNAPESCA has provided a minute with the main regulations that have been approved in the context of discards and incidental catches on Jack mackerel fishery along the years as an indicator that reviews have been made for dealing with this issue (adjustments to the lists of species authorized as accompanying fauna and requirements, regulation on TEL manouver, protocols for mandatory return to the sea of Chondrichthyes, IDR requirements, among others). SERNAPESCA (2024) stated that "*the fishery management bodies have complied with all legal and regulatory requirements in matters of discarding and incidental fishing corresponding to the different phases of the process; diagnosis, reduction and control, either by allocating a budget and developing research projects to collect adequate technical background, establishing reduction plans and reviewing all associated regulations and finally implementing modern control mechanisms and sanctions for non-compliance in 100% of the fleet. This process has been built collaboratively with users through different bodies such as Management Committees, Scientific Committees, Industrial Associations*". According to data provided on logbooks from the discards program attached to reports of IFOP, there has been a reduction of catches of the secondary species of this fishery from 2019-2022 (Vega *et al*., 2020, 2021, 2022 and 2024 and Ossa *et al*., 2023). Catches of chub mackerel reduced from about 953 tons in 2019 to 140 tons in 2022, while catches of Humbold squid were 50 tons in 2020 and 15 in 2022 (Table 33). Scientific observers recorded 112 Peruvian pelican catches and 47 sooty shearwater catches in 863 fishing hauls over three years (2015-2017) [Vega *et al*., 2018]. Over the last five years (2019-2023), they observed only 8 Peruvian pelican catches and 1 sooty shearwater catch in 1,800 fishing hauls and none catches of

Table 32. Condition 3.

Albatross species or cape petrel/cape fulmar were reported in this period (Vega *et al*., 2024) (Table 34).

Table 33. Compilation of total catches data of non-seabirds species caught by the central – southern Chilean Jack mackerel industrial purse seine fishery from 2019-2022, according to data provided on logbooks attached to reports of IFOP (Vega *et al*., 2020, 2021, 2022 and Ossa *et al*., 2023).

Latin name	Common name		2019		2020		2021		2022		Average	
	English	Spanish	Total catch (t)	% Total catch	Total catch (t)	% Total catch	Total catch (t)	% Total catch	Total catch (t)	% Total catch	Total catch (t)	% Total catch
Scomber japonicus	Chub mackerel	*Caballa*	952.945	0.0329	321.680	0.0066	641.417	0.0120	140.349	0.0017	514.098	1.3285
Dosidicus gigas	Humboldt squid	*Jibia*	0.000	0.0000	50.000	0.0010	0.000	0.0000	15.000	0.0002	16.250	0.0003

Table 34. Catches of secondary seabird species identified in the initial assessment caught by the central - southern Chilean Jack mackerel industrial purse seine fishery from 2019-2023 (table adapted from Vega *et al*., 2024).

Common name	Scientific name	2019	2020	2021	2022	2023	Total
Peruvian pelican	*Pelecanus thagus*	4	0	0	3	1	8
Sooty shearwater	*Ardenna grisea*	1	0	0	0	0	1
Total number of hauls observed on board per year (*)		336	262	231	397	574	
Coverage of onboard observation per year (**)		10,8	10,1	9,3	14,4	17,2	

(*) Actual coverage in number of hauls

(**) Coverage of observers on board this fleet. It does not imply that incidental catch was observed in 100% of the hauls. Coverage is presented in this way, since Sernapesca does not officially record the hauls of each fishing trip.

IFOP researchers have clarified during the audit that, due to the various measures and dissemination programs implemented over the years to reduce discards and incidental catches, along with the consistently low levels of unwanted catch in this fishery, there is no need for constant formal and well-established reviews of alternative mortality reduction strategies. They pointed out that the annual IFOP reports on discard programs, the regular updates to the lists of authorized accompanying species, the stock assessments, and the establishment of quotas by Management and Scientific Committees can all be seen as ongoing reviews of measures to minimize unwanted catch mortality.

INPESCA and ATF-Chile informed in the audit that they plan to keep annual workshops with the fishermen for dissemination and improvements of good practices to reduce bycatches and discards, which implies in reviews of measures to minimize unwanted catch mortality.

Progress status	Condition closed at surveillance 4 and PI.2.2.2 was rescored (see section 5.2.2).
Remedial action	No remedial action needed; condition has been closed.
Additional information	No further information required.

- **Condition 4**

Table 35. Condition 4.

Performance Indicator	**PI 2.3.2 ETPs Species Management**	
Score	70	
Justification	The discard reduction programme launched by IFOP in 2014 in response to the revised LGPA in 2013 represents part of a formal process for reducing the catch of non-target species (including ETP species) that is due to result in the publication of a "Discard Plan" for the Jack mackerel fishery. There is evidence that this review of catch composition and management measures is underway, which is sufficient to meet the SG 60 requirements. The revisions to the LGPA that were made in 2013 require (at Article 1º C) that "Every five years, the effectiveness and implementation of conservation and management measures will be evaluated". At this point the initial review is still underway, and there is no evidence that it will be conducted regularly, so **neither the SG 80 or 100 requirements are presently met.**	
Condition	The client shall ensure by the ~~third~~ fourth surveillance audit there are regular reviews of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and evidence shall be presented to show that they are implemented as appropriate.	
Condition start	The condition was set up at the full-assessment, in the PCR of Aril 29th 2019.	
Condition deadline	As part of this surveillance audit, and as allowed by MSC Derogation 6, the deadline and associated milestones for this condition have all been extended by 12 months. The new deadline for this condition is the fourth surveillance audit (October 2023).	
Milestones	As outlined above, condition milestones have been extended as per MSC Derogation 6. The review of alternative measures is independent of the management strategy/partial strategy and is based on 1) whether or not alternative measures to reduce the fishery's impacts exist, and 2) if they do, whether or not it would be practicable to implement them. With this in mind, the condition could be closed early if 1) no practicable alternative measures are identified or 2) alternative measures are identified and implemented and 3) there is a commitment to conduct another review of alternative measures within the timeframe defined by the MSC definition of 'regular'. **~~At the first surveillance audit~~ At the second surveillance audit**: the client shall provide evidence to show that a review of the effectiveness and practicality of alternative measures to minimize UoA- related mortality of ETP species is being carried out. **Resulting score: 75** **~~At the second surveillance audit~~ At the third surveillance audit**: the client shall provide to show that a review of the effectiveness and practicality of alternative measures to minimize UoA-related mortality of ETP species has been carried out. **Resulting score: 75** **~~At the third surveillance audit~~ At the fourth surveillance audit**: the client shall provide evidence to show that there is a regular review of alternative measures to minimize UoA related mortality of ETP species and that such measures are being implemented as appropriate. **Resulting score: 80**	
Progress on Condition	Following the 12-month extension to this condition as part of this surveillance audit, and as required by MSC Derogation 6, the associated milestones have been extended by 12 months.	
	Year 1	As a part of the surveillance activities the assessment team has reviewed the classification of the ETP species affected by this PI. Finally, as a result of this review, one species assessed as secondary main, Kelp gull, has been moved to ETP species as it meets the MSC criteria to be classified as ETP (more details in background section). The rest of the seabird's species previously identified as ETPs have remained in this section. The condition on ETP species is linked with the previous condition evaluated in the table below. Both conditions are aimed at reducing the interactions and mortality of seabirds and in the case of ETP, marine mammals. By the year 1 and during the surveillance audit, the assessment team was provided with the Good Practice Manual developed by INPESCA as a part of the client action plan defined by the fishery during the full assessment. In the Good Practice Manual, it can be seen that measures to reduce the incidental catches of seabirds and marine mammals have been incorporated and other will be implemented in the next 12 months.

Table 35. Condition 4.

		As a part of these measures, there are protocols for the mitigation, handling and release of seabirds and marine mammals. In the Good Practice Manual, actions are implemented to mitigate bycatch of chondrichthyan and catches of marine mammals. Further, initiatives are currently underway in research and development of fishing gear and strategies to reduce the risk of seabirds becoming entangled in purse seine nets (e.g., sound deterrent devices) by chasing them away when they approach the net. The development of these initiatives takes place in parallel with the development of the current good practice manual. The client group is working closely to Birdlife and Albatross Task Force to ensure that the mitigation measures are successfully implement in the fishery. Also, Chile is engaged with the US MMPA. During the site visit, in the meeting held by the assessment team with INPESCA and IFOP, it was told that measures and how they are working will be monitored annually. Actually, the Reduction Plan of bycatch for the fishery has shown the results of the observer program and the interactions reported with seabirds and marine mammals. Results from 2016, 2017 and 2018 have shown a decreased in the total interactions and mostly with all the species assessed.
	Year 2	The condition on ETP species is linked with the previous condition evaluated in the table above. Both conditions are aimed at reducing the interactions and mortality of seabirds and in the case of ETP, marine mammals. By the year 1 and during the surveillance audit, the assessment team was provided with the Good Practice Manual developed by INPESCA as a part of the client action plan defined by the fishery during the full assessment. In the Good Practice Manual, it can be seen that measures to reduce the incidental catches of seabirds and marine mammals have been incorporated and other will be implemented in the next 12 months As a part of these measures, there are protocols for the mitigation, handling and release of seabirds and marine mammals. In the Good Practice Manual, actions are implemented to mitigate bycatch of chondrichthyan and catches of marine mammals. Further, initiatives are currently underway in research and development of fishing gear and strategies to reduce the risk of seabirds becoming entangled in purse seine nets (e.g., sound deterrent devices) by chasing them away when they approach the net. The development of these initiatives takes place in parallel with the development of the current good practice manual. The client group is working closely to Birdlife and Albatross Task Force to ensure that the mitigation measures are successfully implement in the fishery. Also, Chile is engaged with the US MMPA During the second annual surveillance the team received a report developed by ATF-Chile in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, where is carrying out an external review process of the development of local protocols of good practices applied to the Jack mackerel fishery, such as the Manual of Good Practices for Fishing Jack Mackerel During this work the objective has been to identify gaps in the performance of the crews in procedures for the identification of non-target species, techniques of rescue and safe handling of the same and detect suitable sites on board for the installation of infrastructure, which facilitates the release or maintenance of species of injured marine fauna, in turn the safety material that each ship has for these purposes has been reviewed, and then make recommendations, which allow to reinforce the mission of the MGPJ, in order to advance from the fleets in the improvement of practices on board in the reduction of impacts on the ecosystem as part of the MSC certification principles During the site visit, in the meeting held by the assessment team with INPESCA and IFOP, it was told that measures and how they are working will be monitored annually. Actually, the report of Reduction Plan of bycatch for the fishery has shown the results of the observer program and the interactions reported with seabirds and marine mammals. Results from 2018, 2019 2020 and 2021 have shown a decrease in the total interactions and mostly with all the species assessed.

Table 35. Condition 4.		
	Year 3	During the third annual surveillance the team received a report developed by INPESCA in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA, Titled "Technical Report: Monitoring of discard and ETP species in the Jack mackerel fishery of south-central Chile, 2020-2023".In this report INPESCA concluded the following:*The opinion that the team of researchers of INPESCA has in relation to compliance with the mitigation measures of the discard reduction plan for the administration in the Jack mackerel fishery, is very positive, the background presented in this report indicates that the company has made an important effort to implement actions to mitigate discard and reduce bycatch, Although it is necessary to continue learning about the proposed measures to make the necessary adjustments that will go in the optimization of the actions proposed, for example in the manual of good practices, important advances are observed that are evidenced in the reduction of discard and incidental fishing that mark a good starting point in the implementation of the Discard Law (Law 20,625).* Thus, there is evidence that a review of the effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species has been carried out by INPESCA
	Year 4	During the audit performed in July 2024, INPESCA presented an updated version of the "Technical Report: Monitoring of discard and ETP species in the Jack mackerel fishery of south-central Chile, 2020-2023", including data of 2023 (INPESCA, 2024), as the older version considered only data from 2020-2022. No major changes on the results were verified and the main conclusion remained the same: INPESCA research team views the company's efforts to implement discard reduction measures in the Jack mackerel fishery positively, noting significant progress, though ongoing adjustments are needed to optimize these actions. INPESCA also provided a register of a workshop that was organized in November 2023 to provide the results of the report to the crew, identify gaps and make recommendations. ATF-Chile has presented material during the audit showing the actions made to comply with the recommendations pointed in the report developed in collaboration between the companies subscribed to PESCADORES INDUSTRIALES DEL BIOBÍO and SONAPESCA that was presented in the third surveillance. The actions included implementation of a rescue kit and safe container on the vessels for recover of the seabirds on board, trainings with the crew, production of technical documents, videos and guides of best practices and species identification. Decree 21/2020 approved a plan for the recovery, conservation and management of the pink-footed shearwater. The duration of this plan is 20 years and several actions has been implemented, according to the minutes of the follow-up meetings provided by Ministry of Environment through de Chilean Transparency Portal in August 2024 (MMA, 2023 and 2024). MMA (2024) showed that the NGO Oikonos has conducted research on the pink-footed shearwater and the interaction of fisheries. They identified migration patterns of the species and the interaction of fisheries with pink-footed shearwater in national territory. In addition, areas of overlap between feeding areas and fisheries have been identified. Complementing this research, a collection of testimonies from artisanal fishermen and their interaction with pink-footed shearwater has been carried out and alternatives were identified to mitigate the magnitude of the impact of bycatch. Luis Cocas, the representative of SERNAPESCA stated that "there is information that would allow determining feeding areas of the pink-footed shearwater, but development and analysis are needed to obtain more precise conclusions" (MMA, 2024). SERNAPESCA has provided a minute with the main regulations that have been approved in the context of discards and incidental catches on Jack mackerel fishery along the years as an indicator that reviews have been made for dealing with this issue (adjustments to the lists of species authorized as accompanying fauna and

Table 35. Condition 4.

requirements, regulation on TEL manouver, protocols for mandatory return to the sea of chondrichthyes, IDR requirements, among others). SERNAPESCA (2024) stated that "*the fishery management bodies have complied with all legal and regulatory requirements in matters of discarding and incidental fishing corresponding to the different phases of the process; diagnosis, reduction and control, either by allocating a budget and developing research projects to collect adequate technical background, establishing reduction plans and reviewing all associated regulations and finally implementing modern control mechanisms and sanctions for non-compliance in 100% of the fleet. This process has been built collaboratively with users through different bodies such as Management Committees, Scientific Committees, Industrial Associations*".

In the last seven years (2017-2023), in 2,923 fishing hauls recorded by scientific observers, incidental catches of the ETP birds have been minimal (Vega *et al*., 2024) Table 36, especially when comparing with the numbers from 2015-2016, when 1,165 fishing hauls were recorded (Vega *et al*., 2017). Catches of kelps gull decreased from 224 to 20, while pink-footed shearwater, from 13 to 4 (Vega *et al*., 2017 and 2024). About 838 sea lions were caught, and 11 have died in the last seven years, while in 2015-2016, 1,751 sea lions were caught and 14 died (Table 37).

Table 36. Catches of ETP species identified in the initial assessment caught by the south-central Chilean Jack mackerel industrial purse seine fishery from 2019-2023 (table adapted from Vega *et al*., 2024).

Nombre común	Nombre científico	2017	2018	2019	2020	2021	2022	2023	Total
Kelp gull	*Larus dominicanus*	18	0	2	0	0	0	0	20
Black-browed albatross	*Thalassarche melanophris*	0	1	0	0	0	0	0	1
Pink-footed shearwater	*Ardenna creatopus*	1	0	1	1	0	0	1	4
White chinned petrel	*Procellaria aequinoctialis*	0	1	0	0	0	0	0	1
Leatherback turtle	*Dermochelys coriacea*	0	0	0	0	0	0	1	1
South American sea lion	*Otaria flavescens*	256	265	62	12	47	147	49	838
Total number of hauls observed on board per year (*)		410	713	336	262	231	397	574	
Coverage of onboard observation per year (**)		16,7	18,3	10,8	10,1	9,3	14,4	17,2	

(*) Actual coverage in number of hauls

(**) Coverage of observers on board this fleet. It does not imply that incidental catch was observed in 100% of the hauls. Coverage is presented in this way, since Sernapesca does not officially record the hauls of each fishing trip.

Table 37. Incidental mortality of ETP species identified in the initial assessment caught by the south-central Chilean Jack mackerel industrial purse seine fishery from 2019-2023 (table adapted from Vega *et al*., 2024).

Nombre común	Nombre científico	2017	2018	2019	2020	2021	2022	2023	Total
Kelp gull	*Larus dominicanus*	1	0	0	0	0	0	0	1
Black-browed albatross	*Thalassarche melanophris*	0	1	0	0	0	0	0	1
Pink-footed shearwater	*Ardenna creatopus*	1	0	1	1	0	0	1	4
White chinned petrel	*Procellaria aequinoctialis*	0	1	0	0	0	0	0	1
South American sea lion	*Otaria flavescens*	7	2	0	0	0	1	1	11

IFOP researchers have clarified during the audit that, due to the various measures and dissemination programs implemented over the years to reduce discards and incidental catches, along with the consistently low levels of unwanted catch in this fishery, there is no need for constant formal and well-established reviews of alternative mortality reduction strategies. They pointed out that the annual IFOP reports on discard programs, the regular updates to the lists of authorized accompanying species, the stock assessments, and the establishment of quotas by Management and Scientific Committees can all be seen as ongoing reviews of measures to minimize unwanted catch mortality.

Table 35. Condition 4.		
		INPESCA and ATF-Chile informed in the audit that they plan to keep annual workshops with the fishermen for dissemination and improvements of good practices to reduce bycatches and discards, which implies in reviews of measures to minimize unwanted catch mortality.
Progress status	Condition closed at surveillance 4 and PI.2.3.2 was rescored (see section 5.2.3).	
Remedial action	No remedial action needed; condition has been closed.	
Additional information	No further information required.	

5.3.3 New conditions

There were no new conditions in this survey audit.

5.4 Client Action Plan

There are no new conditions that require an action plan.

6 Appendices

6.1 Evaluation processes and techniques

6.1.1 Site visits

The surveillance audit was conducted as an off-site audit. The objectives of the Surveillance Audit were:

- To review any changes to scientific base of information-including stock assessments.
- To evaluate the progress of the fishery against any Conditions of Certification raised during the Reassessment.
- To review any changes in the management system of the fishery, including legislation, regulations, and licence
- conditions.
- To review any personnel changes in science, management, or industry.
- To review any developments or changes within the fishery which impact traceability and the ability to
- segregate MSC from non-MSC products.
- To review any other significant changes in the fishery.

The surveillance audit consisted of the announcement to stakeholders (Global Trust, 2024) and interested parties as required through the MSC website and more direct stakeholder contact with the original stakeholders that took part in the initial assessment and management organizations that comprise the management system and regime for the Jack Mackerel Purse Seine Fishery. Through this process, a stakeholder consultation plan was developed as part of the off-site assessment.

Emails and information on objectives of the surveillance audit were sent to stakeholders and management agencies. From this, a surveillance off-site conference call plan was organized and appointments for each individual conference call set.

- Off-site Surveillance Audit dates were from July 22nd to July 25th, 2024.
- Off-site Surveillance Audit was conducted by Dr. Virginia Polonio (Lead Assessor), Dr. Ivan Mateo Ms. Ana Ayres, Ms. Edith Saa.

The surveillance audit Microsoft Teams meetings were informed by pre-determined agendas. The agendas were sent out so as to allow specific stakeholder interests and concerns to be covered through a structured approach.

The surveillance audit team also had Microsoft Team meetings with the client (SONAPESCA) ahead of the remote site visit. Information and notes from the consultation phase of the assessment were combined with a review of formal documentation from science and management agencies, and the direct evidence collected during each of the consultation meetings.

6.2 Stakeholder participation

Table 38. Microsoft Teams meetings during the Off-Site Surveillance Assessment of the Jack mackerel purse seine fishery.

Name of Organization	Present at Meetings	Venue	Date/Time
Meeting with Chiefs of Fleet and Business representatives	PESCADORES INDUSTRIALES DEL BIOBÍO Monserrate Jamett Rodrigo Márquez CAMANCHACA PESCA SUR S.A Alejandro Floras Fernando Jiménez FOODCORP CHILE S.A Per Bjanes ORIZON S.A. Jorge Buzeta BLUMAR S.A José Ocares LANDES S.A Patricio Hernández SONAPESCA Rodrigo Zamora	Microsoft Teams	July 22nd 2024
SONAPESCA	SONAPESCA Rodrigo Zamora	Microsoft Teams	July 22nd 2024
IFOP	Rodrigo Vega	Microsoft Teams	July 22nd 2024
SUBPESCA	SUBPESCA Victor Espejo Silvia Hernández Luis Cocas	Microsoft Teams	July 24th 2024
IFOP	IFOP Erick Gaete	Microsoft Teams	July 24th 2024
ATF Birdlife	ATF Birdlife Cristian Suazo	Microsoft Teams	July 25th 2024
INPESCA	INPESCA Aquiles Sepúlveda Carlos Gonzales	Microsoft Teams	July 24th 2024
IFOP	IFOP Ignacio Paya	Microsoft Teams	July 25th 2024
SONAPESCA	SONAPESCA Rodrigo Zamora	Microsoft Teams	July 25th 2024

6.3 Stakeholder input

No written stakeholder input was received during the stakeholder input opportunities (i.e., the 30-day stakeholder comment period and the Surveillance Audit itself). A summary of verbal stakeholder input received during the surveillance audit activities is provided in Table 39 below.

Please note that this summary is limited to the substantive issues discussed and this section is not intended to represent a verbatim account of stakeholder meetings. Additionally, only summaries of issues discussed with

stakeholders other than management and client group entities (i.e., external stakeholders) are included. The assessment team has not responded directly to the verbal stakeholder input, but the issues raised have been considered as part of this assessment.

Table 39. Summary of substantive 'within scope' issues discussed.

Date	Organization		CAB response to stakeholder input
July 22nd, 2024	Client Opening meeting	- Scope and objectives of audit. - Recent significant changes. - No changes that would affect traceability and ability to segregate. MSC and non-MSC products. Trying to reduce risk by adding allowable gears and stakeholders.	Issues discussed were considered as part of this assessment.
July 24th 2024	IFOP Eric Gaete	- Recent significant changes to regulations and personnel. - Changes in recording of catch and effort information and landings. - Sampling programs/level of sampling and surveys including inspector and other observer programs. - Levels of compliance with reporting requirements for non-target species. Video camera device, procedures, and new regulations.	Issues discussed were considered as part of this assessment.
July 24th, 2024	SUBPESCA	- Recent changes to the surveys, stock assessment, harvest strategy and harvest control rules for the species under assessment. - Fishery interactions with marine mammal and seabirds species - Any new measures in place. - Changes in permanent spatial closures, impacts of fishery on habitats, information on Vulnerable Marine Ecosystems (VMEs), monitoring program, closed areas etc. - Impacts of fishery on wider ecosystem. - Update on harvest control rules for BLim. - Discards program.	Issues discussed were considered as part of this assessment.
July 25th 2024	IFOP Non - target species	- Recent significant changes to regulations and personnel. - Changes in recording of catch and effort information and landings. - Sampling programs/level of sampling and surveys including inspector and other observer programs. - Levels of compliance with reporting requirements for non-target species. Video camera device, procedures, and new regulations.	Issues discussed were considered as part of this assessment.
July 25th 2024	ATF Birdlife	- Interactions with seabirds' discussion - Conditions progress on PI 2.2.2 and PI 2.3.2	Issues discussed were considered as part of this assessment.
July 24th 2024	INPESCA	- Recent changes to the surveys, stock assessment, harvest. - Strategy and harvest control rules for the species under assessment. - Adherence to recommended TACs in recent fishing seasons. - Changes in observed fishing pattern (e.g., by area, no. vessels, temporal changes). - Changes in recording of catch, effort, and landings information. - Sampling programs/level of sampling and surveys including inspector and other observer programs. - Conditions progress on PI 2.2.2 and PI 2.3.2	Issues discussed were considered as part of this assessment.

July 25th 2024	IFOP Ignacio Paya	- 2023 Stock assessment. - Management Strategy evaluation progress. - Harvest control rules and Blim.	Issues discussed were considered as part of this assessment
July 25th 2024	Client	- Review outstanding findings, and any other appropriate information collected during the assessment. - Discussion of evidence presented for the assessment team. - Agreed timeframes for Client group to present further evidence. - Discuss assessment follow-up and next steps prior. - Questions from client group in relation to.	Issues discussed were considered as part of this assessment.

6.4 Revised surveillance programme

As noted previously, the surveillance program for this fishery has changed from that previously indicated in the PCR but not from the previous surveillance year 3. Therefore, more details about these changes were presented in the surveillance report from year 3. The tables below contain a summary of the rationales given in previous audits as a result of those changes. Please look at this report for more information.

Table 40. Fishery surveillance program.

Surveillance level	Year 1	Year 2	Year 3	Year 4
Level 3	Off-site surveillance audit.	Off-site surveillance audit.	Off-site surveillance audit.	Off-site surveillance audit.

Table 41. Timing of surveillance audit.

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
4	26 October 2022	22 to 25 July 2024	Availability of the audit team and key stakeholders

Table 42. Surveillance level justification.

Year	Surveillance activity	Number of auditors	Rationale
4	Offsite audit	4	- Based on the client's action plan, it is evident that the necessary information to verify progress towards meeting the conditions can be provided remotely in year 4. Therefore, Global Trust proposes to conduct an off-site audit with a team of four auditors, as the required data for the fishery can be accessed remotely. - Electronic communication methods are widely accessible, and documents related to fisheries advice, research, and management are available online or can be obtained electronically. Consequently, Global Trust Certification has determined that it is feasible to collect and verify the necessary information remotely.

6.5 Harmonised fishery assessments

Table 43. Overlapping fisheries.

Fishery name	Certification status and date	Performance Indicators to harmonise
Chilean Jack mackerel industrial purse seine fishery	Certified since 26 April 2019	
European South Pacific mid water trawl jack mackerel fishery	Certified since 26 March 2020	P1: 1.1.1, 1.1.2,1.2.1,1.2.2.,1.2.3,1.2.4 P2:2.4.1,2.42,2.4.3,2.5.1,2.5.2,2.5.3 P3: 3.1.1,3.1.2.3.1.3
Chile Austral hake (*Merluccius australis*) industrial trawl and longline	Certified since 24 September 2019	PIs pre-fixed with 3.1.
Chile squat lobsters and nylon shrimp modified trawl	Certified since 13 September 2016	PIs pre-fixed with 3.1.
Chile squat lobsters and nylon shrimp Camanchaca demersal trawl fishery	Certified since 9 February 2017	PIs pre-fixed with 3.1.

Table 44. Overlapping fisheries – Harmonisation activities.

Supporting information	
Harmonisation activities were not held during this surveillance audit. However, some emails have been exchanged with the GTC and CUUK to discuss the situation regarding the condition in PI 1.2.2 and how it will be addressed in the fishery's reassessment ACDR. Although no formal activities related to the 2024 annual harmonization have taken place, conversations have already started, and the CABs are in contact. Further activities will be scheduled once CUUK announces its surveillance audit and GTC its ACDR.	
Was either FCP v2.3 Annex PB1.3.2.1 applied when harmonising?	No
Date of harmonisation meeting	01 July 2024
If applicable, describe the meeting outcome	
Further conversations will be held once ACDR for reassessment of the GTC fishery and next audit for CUUK fishery are announced.	

Table 45. Overlapping fisheries – Scoring differences.

Performance Indicators (PIs)	Chilean Jack mackerel industrial purse seine fishery	European Union (EU) South Pacific Jack Mackerel fishery	Chile Austral hake (*Merluccius australis*) industrial trawl and longline	Chile squat lobster and nylon shrimp modified trawl	Chile squat lobsters demersal trawl Camanchaca fishery
1.1.1	100	100	NA	NA	NA
1.1.2	n/a	100	NA	NA	NA
1.2.1	5	80	NA	NA	NA
1.2.2	80	75	NA	NA	NA
1.2.3	80	90	NA	NA	NA
1.2.4	95	100	NA	NA	NA
2.4.1	100	100	NA	NA	NA
2.4.2	85	85	NA	NA	NA
2.4.3	80	80	NA	NA	NA
2.5.1	80	80	NA	NA	NA
2.5.2	80	80	NA	NA	NA
2.5.3	90	90	NA	NA	NA
3.1.1	90	100	100	95	100
3.1.2	90	95	85	85	85
3.1.3	90	100	100	100	100
3.2.1	100	100	NA	NA	NA
3.2.2	85	90	NA	NA	NA
3.2.3	80	100	NA	NA	NA
3.2.4	80	80	NA	NA	NA

Table 46. Overlapping fisheries – 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)
Differences on PI 1.2.2: GTC closed the condition on PI 1.2.2 during their surveillance audit in July 2023. This was before the SPRFMO's 11th Scientific Committee meeting in September 2023. The Control Union team took into account the reports from the 11th Scientific Committee meeting and considered not to close the condition. There were differences in 3.2.2, 3.2.3 and 3.2.4 because of the distinct management regimes where the fisheries operate: the Chile Purse Seine jack mackerel jurel fishery additionally fishes inside the Chilean EEZ and is managed under the jurisdiction of Chile. The EU South Pacific midwater otter trawl fishery on other hand, only fishes in the SPRFMO convention area and only relies on the Chilean management authorities for controls at landing. However, the GTC CAB closed the condition for the Chilean Purse Seine fishery on its surveillance audit 1 and both fisheries have now similar scorings.
If exceptional circumstances apply, outline the situation and whether there is agreement between or among teams on this determination
NA

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Principle 3

Ministerio de Economía Fomento y Turismo, Decreto Nº 69 de 2022, modificado por Decreto Nº 30 de 2023, establece cuota global de jurel para el 2023.
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Subsecretaría de Pesca y Acuicultura, Resolución Nº 12 de 2024, establece los porcentajes de especies como fauna acompañante y límite anual de toneladas a capturar para el 2024.
Subsecretaría de Pesca y Acuicultura, Resolución N° 23 de 2024, establece la distribución regional de la cuota artesanal de jurel para el 2024.
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Subsecretaría de Pesca y Acuicultura, Resolución Nº 911 de 2024, establece la MCO 01-2024 establecidas por la SPRFMO para jurel año 2024.
Subsecretaría de Pesca y Acuicultura, Resolución N° 1864 de 2024, modifica Resolución N° 03 y N° 04 de 2024, que establecieron las toneladas de las LTP A y LTP B para el 2024.

Subsecretaría de Pesca y Acuicultura, Resolución N° 1867 de 2024, modifica Resolución N° 23 de 2024, que estableció la distribución regional de la cuota artesanal de jurel para el 2024.
Servicio Nacional de Pesca, Resolución Nº 736 de 2022, establece el Plan Nacional de Fiscalización para el 2023.
Servicio Nacional de Pesca, Respuesta a consulta por Transparencia Nº AH10T0005186 sobre materias decumplimiento.
SPRFMO, CMM 01-22, establece medidas de manejo pesquería jurel para el 2022.
SPRFMO, CMM 01-23, establece medidas de manejo pesquería jurel para el 2023.
SPRFMO, CMM 01-24, establece medidas de manejo pesquería jurel para el 2024.
SPRFMO, Doc. SC 11 Doc 25, 11 Meetting of the scientific Committe, Anual report of the Republic of Chile to SC11 jack Mackerel.

8 Template information and copyright

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