MarinTrust Whole fish fishery assessment report

Chile
Falkland sprat (Sprattus fuegensis)
in FAO 87.3.3, Chilean EEZ Region X (Los Lagos)

Initial
WF21

Table 1: Whole fish fishery assessment scope

Fishery name	Chile - Falkland sprat (*Sprattus fuegensis*) in FAO 87.3.3, Chilean EEZ Region X (Los Lagos)
MarinTrust report code	WF21
Type 1 species (common name, Latin name)	*Falkland sprat (Sprattus fuegensis), Araucanian herring (Strangomera bentincki) and anchovy (Engraulis ringens)*
Fishery location	*FAO 87.3.3, Chilean EEZ Region X (Los Lagos)*
Gear type(s)	*Purse seine*
Management authority (country/state)	*Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA)*

Table 2: Applicant and Certification Body details

Application details			
Applicant(s)		*Salmonoil SA (Fiordo Austral), Pesquera Fiordo Austral SA, Glaciares SA (Fiordo Austral)*	
Applicant country		*Chile*	
Certification Body details			
Name of Certification Body		NSF / Global Trust Certification Ltd	
Contact Information for CB (e.g. email address/address/telephone number)		nsf-marintrust@nsf.org	
Fishery Assessor name		Ana Elisa Almeida Ayres	
CB Peer Reviewer name		Matthew Jew	
Number of assessment days	4	**Assessment period (mm/yyyy to mm/yyyy)**	12/2024-12/2025

Table 3: Assessment outcome

Assessment outcome (See Table 4 for a summary of assessment determination)		*Approve*
Approval validity	Valid from *(mm/yyyy):12/2024*	Valid until *(mm/yyyy): 12/2025*
CB peer reviewer evaluation		*Agree with assessment determination*
Fishery Assessment Peer Review Group external peer reviewer evaluation		*Agree with assessment determination*

Table 4: Assessment determination

Assessment determination **Summary of assessment and outcome**
The Falkland sprat (*Sprattus fuegensis*) [*sardina austral or sur*] fishery that operates in inland waters of the Los Lagos Region (southern zone) in Chile is a fishery conducted by the artisanal sector. According to data from the scientific observer program in place, from 2017-2021, Falkland sprat composed about 78.96% of the catches. The accompanying fauna was composed mainly of Araucanian herring (*Strangomera bentincki*) [*sardina común*], composing 10.60% of the catches, followed by Anchovy (*Engraulis ringens*) [*anchoveta],* with 9.67%. All these species are managed by the Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA) and have reference points defined, being assessed under Category A. Minor species of the accompanying fauna considered in this assessment were mote sculpin (*Normanichthys crockeri*) [*mote*] and swarming squat lobster (*Munida gregaria*) [*langostino de los canales*], representing 0.52% and 0.15%, respectively, of the total catch in the artisanal fishery in the period analysed. As these species are not under any specific management regulation, they were assessed as Category D. No other species composed more than 0.10% of the catches of the artisanal Falkland sprat fishery. There is a robust management framework for the Falkland sprat fishery, supported by a management and a science committee where experts and scientist from different institutions ensure the sustainable exploitation of the resources. Compliance with this framework is monitored and when irregularities are identified sanctions are established; hence there is an effective management of the fishery. Dependent and independent fishery data are collected frequently to update and improve the stock assessment each year. The stock assessment establishes advice on precautionary capture quota based on projections of future recruitment, and this evaluation is updated twice a year as data are generated from annual research cruises that estimates the abundance and biomass of recruits of both species. The stocks assessment includes a frame of reference with proxy values that are used as reference point and based on the results a biologically acceptable quota (CBA) is set. The Fisheries Act (LGPA) does not establish prohibitions of commercial fisheries when stocks are below the spawning biomass limit. Instead, a resource recovery plan must be implemented. Management committees are required to elaborate and implement such recovery plans, implying reductions in fishing mortality at levels below or equal to the maximum sustainable level (FMSY). A Management Plan along with a Recovery Program was approved in November 2023 for Falkland sprat stock as it was considered depleted in 2022. The Scientific and Technical Committees for Small Pelagic fish (CCT-PP) pointed in October 2024 that the stock of Falkland sprat is leaving the state of overexploitation in 2023 towards a state of full exploitation in 2024, with a spawning biomass around the maximum sustainable yield (BDMSY) and above the spawning biomass limit, and no overfishing is occurring (BD/BMSY = 0.99, F/FMSY = 0.26). However, the CCT-PP noted that these estimates were preliminary and must be confirmed once the catch and structure data for the second half of 2024 are available. This was the last information available about the status of the stock at the conclusion of this assessment, thus this assessment was based on the results presented in the CCT-PP meeting of October 2024. In 2021, the industrial Araucanian herring *(Strangomera bentincki)* fishing was suspended to prevent further overexploitation when the stock's biomass was below the limit reference point.

According to CCT-PP, currently the stock of Araucanian herring is in a state of overexploitation, reaching a spawning biomass of 13% under the BDMSY, but above the spawning biomass limit and mortality of fishing in the FMSY (BD/BDMSY=0,87 y F/FMSY=0,56). The CCT-PP stated that the stock of anchovy *(Engraulis ringens)* is in a state of full exploitation (BD/BDMSY=1.57 and F/FMSY=0.53), with a reduced probability of overexploitation (p=0.002) and without overfishing for 2023/24. In the Productivity-Susceptibility Analysis - PSA mote sculpin awarded an average productivity score of 1.25 and an average susceptibility score of 3.00; while swarming squat lobster awarded an average productivity score of 1.50 and an average susceptibility score of 2.50. Both species passed against Table D3, indicating that the species are not vulnerable to this fishery. According to available information, the negative effect of the fishery on ETP species is practically null since measures are in place to minimize mortality. The Falkland sprat fishery does not affect the habitat either since purse seines do not interact with any physical habitat. Fishery management framework considers an ecosystem approach to ensure the long-term conservation and sustainable use of the resources while safeguarding the marine ecosystem. The assessor recommends the approval of Falkland sprat fishery in regio X – Los Lagos of Chilean Economic Exclusive Zone (EEZ) for the production of fishmeal and/or fish oil under the current Marin Trust Whole fish Standard (v 3.0).	
Summary of CB peer review	The internal peer reviewer agrees with the assessor's determination of PASS for this fishery, noting that the management framework and surveillance, control and enforcement systems continue to meet the requirements of the MarinTrust Standard. The assessor has addressed any and all comments provided during the internal peer review process. Proper categorizations of Category A and D species were made. Thes species pass their respective clauses. The peer reviewer notes that further impacts on ETP, habitats and ecosystem have been evaluated and there is no evidence of significative impact of the fishery on these 3 components. They meet MT requirements. Overall, the internal peer reviewer agrees that the fishery just about meets the requirements of Category B, and it is consequently recommended for approval for use in the assessment area under the current Marin Trust Standard v 2.0 for whole fish. Therefore, the decision for approval under MarinTrust Wholefish v3.0 standard is supported by the CB.

Summary of external peer review (see Appendix 1 for the full peer review report)	The assessor has delivered a clear, well-referenced report with thorough justification for all scoring decisions. The peer reviewer fully agrees with the assessment outcomes and scores, providing only minor comments. The assessment summary is clear and informative, effectively covering all key sections.
Notes for on-site auditor	NA

Table 5: General results

Section	Outcome (Pass/Fail)
M1 - Management Framework	Pass
M2 - Surveillance, Control and Enforcement	Pass
E1 - Impacts on ETP Species	Pass
E2 - Impacts on Habitats	Pass
E3 - Ecosystem Impacts	Pass

Table 6: Species-specific results

See Table 7 for further details of species categorisation.

Category	Species name (common & Latin name)	Outcome (Pass/Fail/n/a)
Category A	Falkland sprat (*Sprattus fuegensis*)	Pass
Category A	Araucanian herring (*Strangomera bentincki*)	Pass
Category A	Anchovy (*Engraulis ringens*)	Pass
Category D	Mote sculpin (*Normanichthys crockeri*)	Pass
Category D	Swarming squat lobster (*Munida gregaria*)	Pass

Table 7: Species categorisation table

List of all the species assessed. Type 1 species are assessed against Category A or Category B. Type 1 species must represent 95% of the total annual catch. Type 2 species are assessed against Category C or Category D. Type 2 species may represent a maximum of 5% of the annual catch. Species that comprise less than 0.1% of the catch are not required to be assessed or listed here.

Species name (common & Latin name)	Stock	CITES listed yes/no	IUCN Red list Category	% catch composition	Management (Y/N)	Category (A, B, C or D)
Falkland sprat (*Sprattus fuegensis*) [*sardina austral or sur*]	Falkland sprat in inland waters of the Los Lagos Region	No	Least Concern[1]	78.96	Y	A
Araucanian herring (*Strangomera bentincki*) [*sardina común*]	Araucanian herring in Valparaíso region to Los Lagos	No	Least Concern[2]	10.60	Y	A
Anchovy (*Engraulis ringens*) [*anchoveta*]	Anchovy in Valparaíso region to Los Lagos	No	Least Concern[3]	9.67	Y	A
Mote sculpin (*Normanichthys crockeri*) [*mote*]	N/A	No	Not evaluated	0.52	N	D
Swarming squat lobster (*Munida gregaria*) [*langostino de los canales*]	N/A	No	Not evaluated	0.15	N	D

Rationale

The Fisheries Development Institute (IFOP) in Chile has a Scientific Observer Program, in which the discarding and by catch of the fisheries are researched and monitored. The IFOP Scientific Observer Program report from 2022-2023 describes the average catch composition from 2017-2021 of the artisanal Falkland sprat fishery that operates in inland waters of the Los Lagos Region (southern zone)[Table 1] [IFOP, 2023a].

The target species, Falkland sprat (*Sprattus fuegensis*) [*sardina austral or sur*], composed about 78.96% of the catches. The accompanying fauna was composed mainly of Araucanian herring

[1] https://www.iucnredlist.org/species/195021/159405008
[2] https://www.iucnredlist.org/species/98841657/98887036
[3] https://www.iucnredlist.org/species/183775/102904317

(*Strangomera bentincki*) [*sardina común*], composing 10.60% of the catches, followed by Anchovy (*Engraulis ringens*) [*anchoveta*], with 9.67%. All these species are managed by the Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA) and have reference points defined, being assessed under Category A.

According to Galleguillos *et al*. (2012), at the population level in Chile, the Falkland sprat forms a single genetic stock with significant reproductive cohesion. This assessment considers IFOP stock assessments for Falkland sprat in inland waters of the Los Lagos Region.

Galleguillos *et al*. (1994) developed a stock identification study of common sardine and anchovy resources between Regions V (Valparaíso) and IX (Araucanía) of Chile during April 1995 and April 1996 and concluded that there is no evidence to adopt the existence of subunits in the analysis area. Based on the results of this study, IFOP stock assessments extends the analysis to the Region X (Los Lagos), working on the hypothesis of a stock unit between Regions V and X in which the fishery is developed. Thus, this assessment considers stock assessments provided by IFOP for anchovy and Araucanian herring between Valparaíso and Los Lagos (V-X).

Mote sculpin (*Normanichthys crockeri*) [*mote*] and swarming squat lobster (*Munida gregaria*) [*langostino de los canales*] were included in the assessment since they represent 0.52% and 0.15%, respectively, of the total catch in the artisanal fishery. As these species are not under any specific management regulation, they were assessed as Category D. No other species composed more than 0.10% of the catches of the artisanal Falkland sprat fishery.

Table 1. Total catch, average catch and catch of the accompanying fauna species in relation to the target species during the period 2017-2021 in the artisanal pelagic fishery of southern Falkland sprat in the central-southern zone (inland waters of

the Los Lagos region). The number of trips demonstrated was n=86 (IFOP, 2023a).

Nombre común	Captura total (t) 2017-2021	Captura media (t) 2017-2021 para la totalidad de viajes	Capt.especie v/s capt.objetivo
Sardina austral	3.461,304	40,2477	
Sardina común	464,604	5,4024	0,134228
Anchoveta	423,970	4,9299	0,122489
Mote	22,694	0,2639	0,006556
Langostino de los canales	6,474	0,0753	0,001870
Atún lanzón	3,000	0,0349	0,000867
Sierra	1,001	0,0116	0,000289
Merluza de cola	0,512	0,0060	0,000148
Calamar	0,071	0,0008	0,000021
Pejerrey de mar	0,050	0,0006	0,000014
Pateador	0,039	0,0005	0,000011
Pampanito	0,023	0,0003	0,000007
Raya volantín	0,014	0,0002	0,000004

References

Galleguillos R, J Chong, C Oyarzún, M Oliva & R Roa. (1994). Unidades de stock en los recursos sardina común y anchoveta de la zona Centro-Sur. Informes Técnicos FIP, FIP-IT/94-20, 64 pp.

Galleguillos, R., Ferrada, S., Canales-Aguirre, C., Hernández, C., Oliva, M., González, M. T., Cubillos, L., Niklitschek, E., & Toledo, P. (2012). Determinación de unidades poblacionales de sardina austral entre la X y XII regiones de Chile. (Informe Final. FIP 2010-17). Universidad de Concepción.

IFOP. (2023a). INFORME FINAL. Convenio de Desempeño 2022 Programa de investigación y monitoreo del descarte y la captura de pesca incidental en pesquerías pelágicas, 2022-2023. SUBSECRETARÍA DE ECONOMÍA Y EMT / Agosto 2023. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2023/P-581190.pdf

Management requirements

This section, or module, assesses the general management regime applied to the fishery under assessment. It comprises two parts, M1, which evaluates the management framework, and M2, which evaluates surveillance, control and enforcement within the fishery.

1.1. All management criteria must be met (pass) for a fishery to pass the Management requirements.

1.1.1. The sub-criteria offer a structured evidence base to demonstrate that the fishery sufficiently meets the management criteria. It is not expected that sub-criteria are assessed independently of the main criterion.

M1 Management framework

M1.1	**M1.1 There is an organisation responsible for managing the fishery.** *In reaching a determination for M1.1, the assessor should consider if the following is in place:*
	M1.1.1 The management and administration organisations within the fishery are clearly identified.
	M1.1.2 The functions and responsibilities of the management organisations include the overall regulation, administration, science and data collection and enforcement roles, and are documented and publicly available.
	M1.1.3 Fishers have access to information and/or training materials through nationally recognised organisations.
Outcome	*Pass*

Rationale

The Ministry of Economy, Development and Tourism – MINECON (*Ministerio de Economía, Fomento y Turismo*) is the organization involved in promoting the development of the fisheries sector, along with the protection, conservation, and full use of resources and the marine environment.

Chile's institutional structure involves governing the fisheries sector centres around three key organisations, with several other institutions providing additional research and enforcement:

▪ The Undersecretariat of Fisheries and Aquaculture (*Subsecretaría de Pesca y Acuicultura*) – SUBPESCA is a public institution that belongs to MINECON and provides policy settings and regulatory framework (SUBPESCA 2024a);

▪ The National Fisheries and Aquaculture Service *(Servicio Nacional de Pesca y Acuicultura*) - SERNAPESCA is a public institution that belongs to MINECON and is responsible for executing fisheries policy through enforcement (SERNAPESCA 2024a);

▪ The Fisheries Development Institute (*Instituto de Fomento Pesquero*") – IFOP is non-profit private-law and the research arm of the institutional framework and the primary source of scientific advice to SUBPESCA (IFOP 2024a).

Information corresponding to each of the management and administration organizations is publicly available in their websites, and can be consulted by any one with internet access.
References SERNAPESCA. (2024a). ¿Qué es SERNAPESCA?. http://www.sernapesca.cl/que-es-sernapesca SUBPESCA. (2024a). Acerca de la Subsecretaría. https://www.subpesca.cl/portal/616/w3-propertyvalue-538.html IFOP. (2024a). Instituto de Fomento Pesquero. Quienes somos. https://www.ifop.cl/quienessomos/nuestra-organizacion/

M1.2	**M1.2 Fishery management organisations are legally empowered to take management actions.** *In reaching a determination for M1.2, the assessor should consider if the following is in place:*	
	M1.2.1	There are legal instruments in place to give authority to the management organisation(s) which can include policies, regulations, acts or other legal mechanisms.
	M1.2.2	Vessels wishing to participate in the fishery must be authorised by the management organisation(s).
	M1.2.3	The management system has a mechanism in place for the resolution of legal disputes.
	M1.2.4	There is evidence of the legal rights of people dependent on fishing for food or livelihood.
Outcome	*Pass*	

Rationale

The General Law of Fishing and Aquaculture (*Ley General de Pesca y Acuicultura*) - LGPA No 18.892 issued in 1989 and, in particular, the modifications made under law N° 20.657 of February 9th, 2013, is the current law that these organisations follow to manage the fisheries in Chile.

The LGPA represents a modification of previous fisheries legislation, emphasizing commitments to the sustainable use and conservation of marine resources and prioritizing scientific information in decision-making processes. The recommendations of the Scientific and Technical Committees (CCT) are mandatory for all stakeholders, ensuring that conservation measures are based on scientific evidence above all other considerations.

In compliance to Article 4.2, SUBPESCA is legally empowered to take management actions through The LGPA and its amends. SUBPESCA is tasked with several key responsibilities. In accordance with

Article 2 No. 10 of LGPA, SUBPESCA provides the authorizations to carry out extractive fishing activities with a specific vessel, conditional on compliance with the obligations established in the respective resolution. As outlined in Article 5, SUBPESCA must establish Biological Reference Points (PBRs) for all targeted stocks. It is also required to develop management plans for fisheries with restricted access, which must be reviewed and updated every five years. Article 9 mandates the implementation of Biologically Acceptable Catches (CBAs) and resource recovery plans. In compliance with SUBPESCA resolution No. 291/2015, all fish stocks must be exploited around the Maximum Sustainable Yield (MSY) level, making the MSY the primary objective when establishing quotas.

The LGPA defines the rights, obligations, and penalties for both industrial and artisanal fishers, granting legal recognition through resolutions and certificates. Industrial fishing rights are administered primarily through Transferable Fishing Licenses (LTP), which are renewable and legally transferable. Artisanal fishers register for indefinite, transferable rights in regional registries. Additionally, Law 20.249 ensures coastal marine areas for Indigenous communities to preserve traditional resource use.

The Registry of Related Activities (RAC) arises in the framework of the implementation of Law 21.370 that promotes gender equality in the fishing and aquaculture sector. This Registry consists of a cadastre which includes the number of people dedicated to activities such as incarnated, charqueado, smoked, filleting, among others, identifying their specific trade and geographic location. This Registry was created under the premise that "it is the duty of the State to generate the conditions to encourage reduce and/or eliminate job insecurity that mainly afflicts women in the artisanal fishing sector through the mainstreaming of gender approach in the design of public policies by SUBPESCA, and that it is necessary to advance in mechanisms that allow recognizing and valuing the important work in the development of related activities, which have historically been linked to extractive activity". The RAC is administered by SERNAPESCA, which has the responsibility of carrying out training and registration in the Registry, maintaining the integrity and veracity of the data (SUBPESCA 2023).

To solve disputes between users and the fisheries authority, the following mechanisms are available:

- Administrative acts issued by the fisheries management authority can be contested at the administrative level within the Ministry of Economy, Development and Tourism, in accordance with Law No 19.880 (Law of Administrative Procedures). This can be done through remedies such as requests for reconsideration, hierarchical appeals, and review petitions as outlined in the legislation.
- Additionally, administrative acts may be challenged at the Office of the Comptroller General at the administrative level.
- Any effects resulting from the administrative acts of the fisheries authority can also be contested in court by filing Protection Resources, seeking corrective measures.

Decisions made through any of these processes are binding on the administrative authority and are considered public.

In December 2023, a proposal for a new General Fishing Law was submitted for consideration to the Chilean Congress (NLP 2024). This project was approved unanimously in March 2024 and the FAO support this project (FAO 2024). The initiative seeks to implement a framework regulation for

modern, transparent, sustainable, and equitable Chilean fishing activity that is responsible for responding to the main challenges that the activity and the sector has and will have. Among the main axes of the law initiative stand out: sustainable development of fishing activity, equity in the sector, social protection for artisanal fishermen, scientific-technical approach, and incentive for human consumption. There have been discussions and votes for the approval of the articles of the proposal of the law, which has not been approved yet (Mongabay 2024).
References FAO (2024). Servicio de Derecho para el Desarrollo. La FAO presentó su parecer técnico al proyecto de "Nueva Ley General de Pesca" de Chile. https://www.fao.org/legal-services/news/detail/es/c/1680976/ Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía. Ley 20.249, Crea espacios costeros marinos para pueblos originarios. Ley 19.880, Ley de Procedimiento Administrativo. NLP. (2024). Nueva Ley de Pesca. https://www.gob.cl/nuevaleydepesca/ Mongabay (2024). Chile: nueva ley de pesca buscará redistribuir las cuotas de pesca entre artesanales e industriales https://es.mongabay.com/2024/10/chile-nueva-ley-de-pesca-buscara-redistribuir-cuotas-de-pesca-entre-artesanales-industriales/ SUBPESCA (2023). MUJERES Y HOMBRES en el Sector Pesquero y Acuicultor de Chile 2023. https://www.subpesca.cl/portal/618/articles-121456_recurso_1.pdf

M1.3	**M1.3**	**There is an organisation responsible for collecting data and (scientifically) assessing the fishery.** *In reaching a determination for M1.3, the assessor should consider if the following is in place:*
	M1.3.1	The organisation(s) responsible for collecting data and assessing the fishery is/are clearly identified.
	M1.3.2	The management system receives scientific advice regarding stock, non-target species and ecosystem status.
	M1.3.3	Scientific advice is independent from the management organisation(s) and transparent in its formulation through a clearly defined process.
Clause outcome	*Pass*	

Rationale

The Fisheries Development Institute - IFOP, established in 1964 through a joint agreement between the Chilean government, FAO, and the United Nations Development Program (UNDP), is the technical body specialized in scientific research on fisheries and aquaculture. It provides continuous support and advice to SUBPESCA on sustainable fishery resource management and marine environment conservation, as outlined in the amendment to the LGPA (Law No. 20.657 of 2013). The institute conducts ongoing studies based on the annual research program defined by SUBPESCA and oversees the management of fisheries research and monitoring data. IFOP is responsible for sampling fish stocks, conducting acoustic surveys, and collecting biological data, ensuring science-based fisheries management. It also collaborates with Chilean universities and various national and international institutions to strengthen data management and research efforts in the sector. The research databases are state-owned, publicly accessible, and adhere to quality standards established in consultation with the CCT.

The CCT serves as an advisory and consultative body to SUBPESCA, established under Law No. 20.657 of 2013 (Paragraph 3, Title XII, LGPA). It provides scientific guidance on managing closed-access fisheries and environmental or conservation issues deemed necessary by the Undersecretariat of Fisheries. As outlined in Article 153 of the LGPA, the CCT is tasked with assessing the fishery's status, defining biological reference points, and setting the range for catch quotas. Additionally, it may advise on other matters, including the development of management and conservation measures and the creation of management plans. The CCT for the Falkland sprat fishery is part of the Scientific Committee for Small Pelagic Fisheries, which, in addition to Falkland sprat, deals with other small pelagic fisheries in the area.

The LGPA, under Articles 8 and 9 bis, mandates the development of a Management Plan for fisheries with closed access or those declared as fully exploited, under recovery or in early development regimes. Falkland sprat fishery in the Los Lagos Region operates under a general access regime, associated to a fully exploited state and access for new users has been suspended since 2012. Initially, this suspension began with R. Ex. No. 1840 on July 9, 2012. It was later renewed for three years via R. Ex. No. 2337 on July 18, 2017. During this renewal process, a brief window between July 10 and 17 allowed new users to register. Finally, after the expiration of R. Ex. No. 2337/2017, R. Ex. No. 1498 came into effect on June 25, 2020, extending the suspension of new user registration until June 25, 2025 (R.Ex No. 1498/2020). To comply with the law, a Management Committee was formed for the creation of a Management Plan, which was approved in November 2023, along with a Recovery Program (Res. Ex. CERO PAPEL N° 00358-2023) [SUBPESCA, 2023].

The Management Committee is an advisory body created by Law No. 20.657 of 2013. One of its main functions is to prepare the proposed Management Plan for the fisheries under its jurisdiction, including its implementation, evaluation, and adaptation, if applicable. It is made up of representatives from artisanal fishing, industrial fishing, processing plants, the National Fisheries Service and SUBPESCA.

Meanwhile, SERNAPESCA (the National Fisheries Service) compiles the necessary data for creating the Fisheries and Aquaculture Statistical Yearbooks, which include detailed landing information.

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de

Economía.

SUBPESCA. (2023). Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse05

Resolución Exenta 1498 de 2020, suspende transitoriamente la inscripción en el registro artesanal de la pesquería de sardina austral, región de los Lagos.

Res. Ex. CERO PAPEL N° 00358 de 2023 Aprueba Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos.

M1.4	**M1.4 The fishery management system is based on the principles of sustainable fishing and a precautionary approach.** *In reaching a determination for M1.4, the assessor should consider if the following is in place:* M1.4.1 A policy or long-term management objective for sustainable harvesting based on the best scientific evidence and a precautionary approach is publicly available and implemented for the fishery.
Outcome	*Pass*

Rationale

LGPA along with its amendments underscores this mission in Article 1° B. It establishes the law's primary objective as the conservation and sustainable use of hydrobiological resources through the application of a precautionary and ecosystem-based approach in fishing regulation, as well as the safeguarding of the marine ecosystems in which these resources exist.

To achieve this objective within the framework of national fisheries policy, the law mandates several guiding principles for adopting conservation and management measures:
• Long-term Objectives: Establish long-term goals for the conservation and administration of fisheries and the protection of their ecosystems, with periodic evaluations to assess the effectiveness of the measures implemented.
• Precautionary Principle: Exercise increased caution in the administration and conservation of resources when scientific information is uncertain, unreliable, or incomplete. The absence of sufficient scientific data should not be used as a justification for delaying or failing to adopt necessary conservation and management measures.

These principles align with SUBPESCA and IFOP's mission to ensure the sustainable use of Chile's marine resources through a science-based, precautionary approach. Moreover, the Management Plan and recovery program recently approved for Falkland sprat in the Los Lagos Region adopted the general principles of LGPA, stating its objective with the conservation and sustainable use of the resource, through the application of the precautionary and ecosystem-based approaches (SUBPESCA, 2023).

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SUBPESCA. (2023). Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse05

M1.5	**M1.5 There is a clearly defined decision-making process which is transparent, with processes and results made publicly available.** *In reaching a determination for M1.5, the assessor should consider if the following is in place:*	
	M1.5.1	There is participatory engagement through which fishery stakeholders and other stakeholders can access, provide information, consult with, and respond to, the management systems' decision-making process.
	M1.5.2	The decision-making process is transparent, with results made publicly available.
	M1.5.3	The fishery management system is subject to periodic internal or external review to validate the decision-making process, outcomes and scientific data.
Outcome	*Pass*	

Rationale

By law SUBPESCA establishes Fishery Management Committees, which are consultative and advisory bodies of the fishing authority conformed by stakeholders from the main sectoral representatives of each fishery, as well as officials of SUBPESCA and SERNAPESCA; and Technical Scientific Committees who are advisory and/or consultation bodies of the SUBPESCA where members are nominated by public competition.

There is a specific Management Committee for Falkland sprat and Technical Scientific Committee for Small Pelagic Fisheries that meet regularly. Acts from the management committee are available since 2016 (SUBPESCA 2024b) and those from the Scientific Committee are available since 2013 (SUBPESCA 2024c), documents are free access and can be found in the SUBPESCA webpage.

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SUBPESCA. (2024b). Comité de manejo Sardina austral. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse03

SUBPESCA. (2024c). Comité Científico de Pesquerías de Pequeños Pelágicos. https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#collapse06

M2 Surveillance, control and enforcement

M2.1	**M2.1**	**There is an organisation responsible for monitoring compliance with fishery laws and regulations.** *In reaching a determination for M2.1, the assessor should consider if the following is in place:*
	M2.1.1	There is an organisation responsible for monitoring compliance with specific monitoring, control and surveillance (MCS) mechanisms in place.
	M2.1.2	There are relevant tools or mechanisms used to minimise IUU fishing activity.
	M2.1.3	There is evidence of monitoring and surveillance activity appropriate to the intensity, geography, management control measures and compliance behaviour of the fishery.
Outcome	*Pass*	

Rationale

Compliance both within and outside Chile's EEZ is monitored by a number of different entities:

• SERNAPESCA: Carries out audits of capture fisheries; implements surveillance and control of compliance with all legal provisions relating to fisheries; develops strategies and procedures for prevention, surveillance, and control of high-risk diseases; provides information and sectoral statistics and manages fisheries and aquaculture records. It has 46 provincial offices established in that county, including 2 insular offices and count with a staff of 900 people (SERNAPESCA 2024a).
• Chilean Navy: Within Chile's Exclusive Economic Zone (EEZ) the Navy monitor an area covering approximately 4.542.990 km^2 ensuring the prevention of depredation of natural resources by protecting the ecosystem from unauthorized activities.
• Observer Programme: There is a plan of reduction of the bycatch of the species that is reviewed periodically and the information is used to establish the limits of additional catches in the fishery.

The position of the artisanal vessels is monitored daily with a satellite device and this information is compared with landing declarations. Pursuant to article 64 of LGPA, vessels with an overall length equal to or greater than 15 meters, are required to install a satellite device as well as artisanal vessels with a length equal to or greater than 12 meters and the ones with less than 15 meters registered as pelagic fisheries using purse seine.

Chile has a National Supervision Plan (NSP), which has the objective of ensuring the application of the rules and requirements that must be respected by those who carry out exploitation activities of fishing resources. SERNAPESCA designs the NSP each year based on a strategic framework with guidelines on compliance priorities for each technical area (fisheries, aquaculture, and foreign

trade) (SERNAPESCA 2024b). The NSP establish several inspection programs such as: satellite monitoring program, landing certification program, weighing system program, joint operations programs, and special control programs.

In 2023, the oversight strategy focused on activities which represented the highest risk to sustainability. Within this framework, and as part of SERNAPESCA's 2023 National Oversight Plan, two Special Oversight Programs were continued: "Landing Control (Fishing and Landing Zone)" and "Combating Illegal Fishing in the Value Chain." Each program focused on specific hydrobiological resources, targeting areas with the most critical non-compliance risks.

According to SERNAPESCA's 2023 Report on Oversight Activities in Fishing and Aquaculture, a total of 65,723 inspection activities were conducted, marking a 29.2% decrease compared to 2022. The satellite tracking system played a significant role, monitoring 94 industrial vessels and 401 artisanal vessels, resulting in 122,637 remote inspections—accounting for 65.2% of all inspection activities. The landing certification program inspected various landing points, certifying 40,574 landings throughout the year. Additionally, 2,785 joint operations in commercial and recreational fishing were carried out, representing a 46.9% increase from 2022 (SERNAPESCA 2024c).

In 2023, the satellite monitoring program tracked an average of 94 industrial fishing vessels daily, fluctuating between 85 and 104 vessels. For the artisanal sector, an average of 401 vessels were monitored daily, with a range between 301 and 508 vessels transmitting their positions (SERNAPESCA 2024c).

In 2023, the inspection coverage increased a 12.2% for artisanal fisheries and 14.4% for industrial fisheries compared to 2022 (SERNAPESCA 2024c). In the case of controls at the landing site, the report shows that in 2023, 61.9% of landing certifications in the industrial pelagic fishery were conducted in person, a 10% decrease from 2022. For the artisanal fleet, in-person attendance rose to 80.8%, a 4% increase. This effort helped control landings of both target species and accompanying fauna, deterring unreliable declarations. The accompanying fauna made up 5.41% in the industrial fishery and 6.1% in the artisanal fishery, both within normal ranges, continuing the trend of reduced bycatch in recent years.

References

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SERNAPESCA. (2024a). ¿Qué es SERNAPESCA?. http://www.sernapesca.cl/que-es-sernapesca

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SERNAPESCA. (2024c). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

M2.2	**M2.2 There is a framework of sanctions which are applied when infringements against laws and regulations are discovered.** *In reaching a determination for M2.2, the assessor should consider if the following is in place:*
	M2.2.1 The laws and regulations provide for penalties or sanctions that are adequate in severity to act as an effective deterrent.
	M2.2.2 There is no evidence of systematic non-compliance.
Outcome	*Pass*

Rationale

The LGPA specifies a range of sanctions for violations, including fines, suspension or revocation of fishing licenses, and confiscation of catch and gear. Offenses, such as industrial vessels landing more fish than their allocated quota, face penalties ranging from monetary fines to license suspension or revocation, depending on the severity of the infraction.

In 2023, there were 626 court summonses issued in the commercial fishing sector (excluding recreational fishing), 15.4% of these in Los Lagos Regions. 36.1% of the 626 court summonses were related to issues with certifying the origin of the product, 22.5% were due to non-compliance with fishing bans, and 20.4% were for violations of authorization requirements (SERNAPESCA 2024c).

According to the SERNAPESCA´s 2023 Report on Oversight Activities in Fishing and Aquaculture (SERNAPESCA 2024c), a total of close to 1,280 tons of hydrobiological species were confiscated due to non-compliance with regulations, which is an amount 54.3% lower than that seized in 2022. The Falkland sprat was not on the ten species with the highest levels of seizures (SERNAPESCA 2024c).

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SERNAPESCA. (2024c). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura.
https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

M2.3	**M2.3 There is substantial evidence of widespread compliance in the fishery, and no substantial evidence of IUU fishing.** *In reaching a determination for M2.3, the assessor should consider if the following is in place:*
	M2.3.1 The level of compliance is documented and updated routinely, statistically reviewed and available.
	M2.3.2 Fishers provide additional information and cooperate with management/enforcement agencies/organisations to support the effective management of the fishery.

	M2.3.3 The catch recording and reporting system is sufficient for effective traceability of catches per vessel and supports the prevention of IUU fishing.
Outcome	*Pass*

Rationale

SERNAPESCA's Report on Oversight Activities in Fishing and Aquaculture (SERNAPESCA 2024c), fulfils the requirements set forth in Article 4 B of the LGPA, which mandates: "*The Service must, in the month of March each year, prepare a report on the inspection activities and actions carried out in the area of fishing and aquaculture during the previous year. The report must also include the results of these inspection actions and the level of compliance with administration and conservation measures from the previous year. It must be published on the Service's website*". By complying with this requirement, SERNAPESCA ensures that the level of compliance is documented, updated, and made publicly available each year.

Additionally, Article 63 of the LGPA requires industrial and artisanal shipowners to report their catches and landings for each vessel to the Service. Hydrobiological resources may only be landed at points or ports authorized by SERNAPESCA. Article 64 A further stipulates that fishing and research vessels operating at sea must have an automatic positioning system. The data generated by this system must be publicly accessible, updated monthly, and published on SERNAPESCA's website.

These articles emphasize the legal obligations of fishers to collaborate with SERNAPESCA and comply with various activities required by law. This compliance is essential to demonstrate the legality of their operations and to maintain their fishing permits.

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(SERNAPESCA 2024c).

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References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SERNAPESCA. (2024c). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura.
https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

Species requirements

This section, or module, comprises of four species categories. Each species in the catch is subject to an assessment against the relevant species category in this section (see clauses 1.2 and 1.3 and Table 6).

Type 1 species can be considered the 'target' or 'main' species in the fishery under assessment. They make up the bulk of the catch and a subjected to a detailed assessment. Type 1 species must represent 95% of the total annual catch. If a species-specific management regime is in place for a Type 1 species, it shall be assessed under Category A. If there is no species-specific management regime in place for a Type 1 species, it shall be assessed under Category B.

Type 2 Species can be considered the 'non-target' species in the fishery under assessment. They comprise a small proportion of the annual catch and are subjected to a relatively high-level assessment. Type 2 species may represent a maximum of 5% of the annual catch. If a species-specific management regime is in place for a Type 2 species, it shall be assessed under Category C. If there is no species-specific management regime in place for a Type 2 species, it shall be assessed under Category D.

Species that comprise less than 0.1% of the catch are not required to be assessed or listed here.

Category A species

2.1. All clauses must be met for a species to pass the Category A assessment.

2.1.1. If a species fails any of the Category A clauses, it should be re-assessed as a Category B

species.

Species Name: Falkland sprat (*Sprattus fuegens*)

A1 Data collection

A1.1	**A1.1 Landings data are collected such that the fishery-wide removals of this species are known.**
Outcome	*Pass*

Rationale

SERNAPESCA is responsible for operating the official landing certification program. Article 63E of LGPA establishes that: "*The holders of any instrument that authorizes the extraction of the industrial fraction of the global quota or fishing authorizations, as well as the artisanal owners of vessels of a length equal to or greater than 12 meters, the artisanal owners of vessels registered in pelagic fisheries with the purse seine gear, whatever their length, and the owners of transport vessels must submit to the Service the landing information by fishing trip referred to in article 63 of this law, submitting to the certification procedure established by the Service*."

Prior to 2006, following the recommendation from the peer review process (Ernst *et al*., 2015) and prioritized by the Scientific and Technical Committees for Small Pelagic fish (CCT-PP), landings of Falkland sprat were estimated from official landings of common sardine, assuming that 70% corresponded to Falkland sprat. This percentage was based on findings from research fishing conducted by IFOP between 2006 and 2012, where this proportion of species was observed in the catches on average (Aranis *et al*., 2012). After being identified as a distinct species from the common sardine, official records of Falkland sprat stock began in 2006, reporting average catches of around 43 thousand tons until 2009. Between 2010 and 2015, annual landings averaged approximately 20 thousand tons, aligning with the assigned quota (Figure 1). Over the past seven years, a decline in landings has been observed, averaging around 10 thousand tons, with the lowest recorded catch of the series occurring in 2023 at 3.4 thousand tons, falling below the established quota of 6.7 thousand tons (IFOP, 2024b).

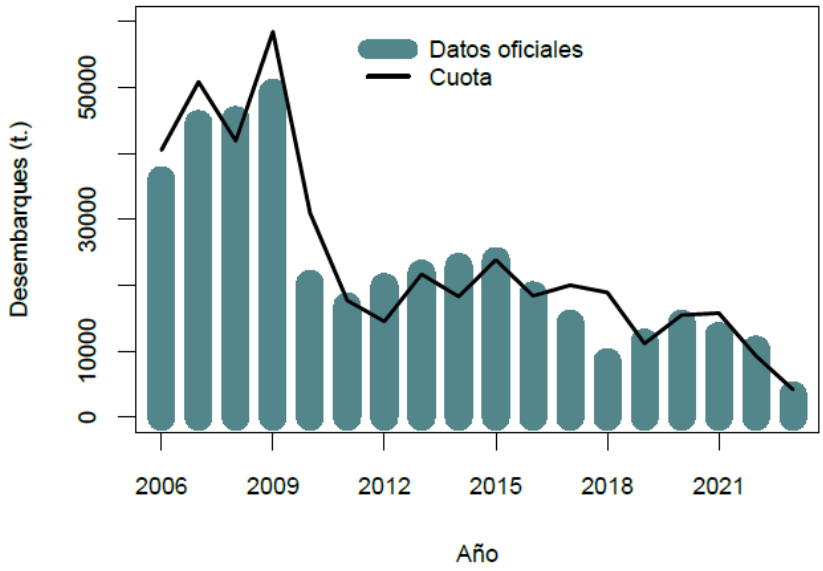

Figure 1. Official landings and catch quotas established for the southern sardine in the Los Lagos Region between 2006 and 2023 provided by SERNAPESCA (IFOP, 2024b).

References

Aranis, Meléndez, R., Pequeño, G., & Cerna, F. (2007). *Sprattus fuegensis* en aguas interiores de Chiloe, Chile (Osteichthyes: Clupeiformes: Clupeidae). Gayana (Concepción), 71(1), 102–113. https://doi.org/10.4067/S0717-65382007000100011

Ernst, B., Valero, J., & Hamel, O. (2015). Programa anual de revisión experta a la asesoría científica de las principales pesquerías nacionales, año 2013: sardina austral (*Sprattus fuegensis*). (Informe Final Proyecto N° 2013-125-FAP-20).

IFOP. (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de sardina austral, Región de Los Lagos, año 2024. Subsecretaría de Economía y EMT. Septiembre 2024. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2024/P-483278.pdf

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía

A1.2	**A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.**
Outcome	*Pass*

Rationale

The evaluation of the biological status of the Falkland sprat is made using several kinds of data. The stock assessment model is based on a statistical analysis of annual age structure dynamics, incorporating biological and fishery data aggregated by calendar year. The data input into the model

includes total landings obtained from SERNAPESCA's official records, annual size composition data, and mean weights by size from the pelagic fishery monitoring program. Additionally, hydroacoustic surveys provide information on vulnerable biomass during the autumn season, along with their respective length compositions (IFOP, 2024b).

In the last stock assessment, the population dynamics was modeled using an age-structured approach, covering the period from 2002 to 2024, with complete data available up to 2023. This includes total landings (2002-2023), the length structure of the fleet (2005-2023), standardized catch per unit effort (CPUE, 2007-2023), and biomass estimates from the PELAGUIN acoustic surveys, along with their respective size compositions (2006, 2008, 2011, 2013-2023). For 2024, the results from the most recent PELAGUIN acoustic survey conducted in April 2024 were available, and it was assumed that the catch would be equivalent to the maximum sustainable yield (MSY) [IFOP, 2024b].

References

IFOP. (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de sardina austral, Región de Los Lagos, año 2024. Subsecretaría de Economía y EMT. Septiembre 2024. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2024/P-483278.pdf

A2 Stock assessment

A2.1	**A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.**
Outcome	*Pass*

Rationale

The stock assessment is carried out by the IFOP at the end of each year and establishes some advice on precautionary capture quota based on projections of future recruitment. This evaluation is updated twice a year as data are generated from the annual research cruises that carry out hydroacoustic evaluation monitoring program, which allows estimating the abundance and biomass of recruits. The hydroacoustic surveys are usually carried out in April and March for the Falkland sprat fishery (IFOP, 2024b). The results generated by the IFOP from each stock assessment are presented to the CCT-PP of the SUBPESCA, who review the information an validate the advice.

References

IFOP. (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de sardina austral, Región de Los Lagos, año 2024. Subsecretaría de Economía y EMT. Septiembre 2024. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2024/P-483278.pdf

A2.2	**A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.**
Outcome	*Pass*

Rationale

In the context of the LGPA, fisheries must reach or remain around the MSY, considering the biological characteristics of the exploited resources. The MSY occurs when the spawning stock biomass is significantly reduced before recruitment is impacted, on average. To achieve this, the PBRs must be estimated:

Spawning Biomass at Maximum Sustainable Yield (BDSY): Below this level, the resource is classified as overexploited (*sobre-explotación*).
Fishing Mortality at Maximum Sustainable Yield (FMSY): Above this level, the resource is classified as subject to overfishing.
Spawning biomass limit (Blim): Below this level, a fishery is classified as depleted or collapsed (*agotada* or *colapsada*).
Fishing Mortality limit (Flim): Above this level, the resource is classified as subject to overfishing.

There is a biological frame of reference that establishes the proxy values used by the CCT-PP to take management decision of the Falkland sprat fishery according to the stock assessment results. The procedures for calculating PBR and species-specific reference frameworks are based on the study "Revision of Biological Reference Points (Maximum Sustainable Yield) in National Fisheries" (Payá *et al*., 2014). During its first workshop, conducted in collaboration with international experts, a three-tier system was developed to derive species-specific MSY for Chilean fisheries.

The Falkland sprat population in the Los Lagos Region is classified as Tier 1b. Payá *et al*. (2014) proposed to use a fishing mortality level that reduces the virgin spawning biomass to 55% (55%BD0) as the management target. This level of reduction corresponds to 60% of the spawning biomass per recruit (60%BDPR). Therefore, the equilibrium F60% from the spawning biomass per recruit (BDPR) analysis is used as the target, serving as a proxy for MSY. A spawning biomass limit of 27.5% of the virginal biomass was also proposed. The CCT-PP accepted the recommendations of the PBRs on the Session N°5/2014.

In the last CCT-PP session available for the Falkland sprat stock published in the end of October 2025 (CCT-PP N°06/2024), the PBRs presented on Table 2 were considered for establishing the CBA 2025.

Table 2. Criteria for CBA 2025 used by the CCT-PP (CCT-PP 2024).

RECURSO	*Proxy* F_{RMS} ($año^{-1}$)	*Proxy* B_{RMS} (toneladas)	B_{lim} (toneladas)
Anchoveta Zona Norte	F55% BDPR 0,82	55% BDPR (ó 50%B0) 624.000	25% B0 312.000
Anchoveta Regiones Atacama y Coquimbo.	F60% BDPR 0,70	60% BDPR (ó 55 %B0) 59.500	27,5% B0 29.750
Anchoveta Regiones Valparaíso a Los Lagos.	$F_{60\% BDPR}$ 0,47	60% BDR (ó 55 %B0) 481.000	27,5% B0 240.500
Sardina Común Regiones Valparaíso a Los Lagos.	$F_{60\% BDPR}$ 0,31	60% BDPR (ó 55 %B0) 841.000	27,5% B0 420.500
Sardina Austral Regiones Aguas Interiores (A.I.) Los Lagos.	F60% BDPR 0,30	60% BDPR (ó 55 %B0) 28.290	27,5% B0 14.145

References

Payá, I., Canales, C., Bucarey, D., Canales, M., Contreras, F., Leal, E., Tascheri, R., Yáñez, A., Zúñiga, M. J., Clark, W., Dorn, M., Dunn, M., Fernández, C., Haddon, M., Klaer, N., & Sissenwine, M. (2014). Revisión de los puntos biológicos de referencia (Rendimiento Máximo Sostenible) en las pesquerías nacionales. Informe Final. Convenio II: Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales 2014. Subsecretaría de Economía y EMT / IFOP, Chile (pp. 1–49 +Anexos). https://www.researchgate.net/publication/301698303_Revision_de_los_puntos_biologicos_de_referencia_Rendimiento_Maximo_Sostenible_en_las_pesquerias_nacionales_Review_of_Biological_Reference_Points_for_main_chilean_fisheries

CCT-PP. (2014). Acta Sesión N°5/2014. https://www.subpesca.cl/portal/616/articles-86241_documento.pdf

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

A2.3	**A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.**
Outcome	*Pass*
Rationale	

The assessments conducted by IFOP provides a robust framework for establishing biologically sustainable fishery removal volumes for the Falkland stock in the Los Lagos region. It leverages continuous quality improvement programs such as the Continuous Improvement Program for the Quality of Scientific Advice - PMCCAC, addressing data gaps and aligning with expert recommendations to refine stock evaluation methods. Updates to the stock assessment model, including age-based dynamics and improved selectivity indices, enhance the accuracy of biomass and abundance projections while accommodating uncertainties like recruitment variability and demographic shifts (IFOP 2024b). This ensures that advisory outputs remain relevant to current stock conditions.

By implementing iterative methodological advancements and incorporating peer-reviewed feedback, the assessments support informed decision-making about catch limits and stock status. Recent efforts highlight improvements in retrospective pattern corrections, reference point estimations, and the integration of recruitment scenarios, ensuring that catch projections reflect ecological realities (IFOP 2024b). These measures enable adaptive management practices, aligning exploitation rates with stock productivity and sustaining fishery resources for future use

Based on the stock assessments performed by IFOP, the CCT-PP advices a biologically acceptable quota (CBA) for the fishery. The last CCT-PP advice available for 2025 (CCT-PP 2024) considered two scenarios:

1. Without Law of Remnants: A total CBA that tends to the MSY equivalent to 11,063 tons, then, discounting the discard, a maximum CBA of 10,553 tons is determined, so the recommended CBA range is 8,442 to 10,553 tons.
2. With Law of Remnants: A total CBA that tends to the MSY and incorporates discard and alternative remainder of the 20%, equivalent to 9,048 tons, so the capture range recommended biologically acceptable is 7,238 to 9,048 tons.

For the determination of both CBA ranges, a 3.7% discount for discards, medium recruitments, and a 20% risk were considered, equivalent to a 21% and 23% reserve, without and with remnants, respectively; and a 2024 capture projection according to seasonality.

The Law of Remnants (Law No. 21.525) plays a key role in shaping the quotas available to artisanal fisheries. It allows unused quotas from the previous year to be transferred, provided certain conditions are met: at least 10% of the global catch quota must remain uncaptured, and the fishery must not be declared depleted or collapsed by the Scientific Committee. However, the transferred remainder cannot exceed 30% of the global quota from the preceding year (DORC 2022). This law emerged in response to challenges faced during 2021 due to the Covid-19 pandemic, which resulted in significant unextracted quotas. Supported by biomass studies ensuring the sustainability of the resource, the law aims to alleviate economic pressures on artisanal fishing communities, allowing them to recover from the pandemic's effects while adhering to conservation principles (CDDC 2023).

Together, these measures reflect the balance sought between sustainable resource management and the socioeconomic needs of fishing communities. By integrating scientific advice with legal mechanisms such as the Law of Remnants, fisheries management seeks to maintain long-term sustainability while addressing immediate challenges.

References

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Ley Num. 21.525. https://www.subpesca.cl/portal/615/articles-117122_documento.pdf

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A2.4	**A2.4 The assessment is subject to internal or external peer review.**
Outcome	*Pass*

Rationale

Stock assessments are conducted by the IFOP and then the results presented to the relevant management and scientific and technical scientific committees, where the information provided is reviewed, discussed and the advice is validated. These committees comprise representatives from both the artisanal and industrial fishing sectors across various regions, along with SERNAPESCA, SUBPESCA, and other relevant institutions. These peer reviews can be considered both internal and external as members of committees may also be outside the assessment process. When necessary, it is common practice of Chilean authorities' commission external reviews for validating the studies, measures and methodologies applied in the management of the fisheries. For example, the procedures for calculating Biological Reference Points and species-specific reference frameworks for national fisheries were discussed in workshops in collaboration with international and national experts (Payá *et al*., 2014, CCT-PP, 2014 and IFOP, 2024b).

References

Payá, I., Canales, C., Bucarey, D., Canales, M., Contreras, F., Leal, E., Tascheri, R., Yáñez, A., Zúñiga, M. J., Clark, W., Dorn, M., Dunn, M., Fernández, C., Haddon, M., Klaer, N., & Sissenwine, M. (2014). Revisión de los puntos biológicos de referencia (Rendimiento Máximo Sostenible) en las pesquerías nacionales. Informe Final. Convenio II: Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales 2014. Subsecretaría de Economía y EMT / IFOP, Chile (pp. 1–49 +Anexos). https://www.researchgate.net/publication/301698303_Revision_de_los_puntos_biologicos_de_referencia_Rendimiento_Maximo_Sostenible_en_las_pesquerias_nacionales_Review_of_Biological_Reference_Points_for_main_chilean_fisheries

CCT-PP. (2014). Acta Sesión N°5/2014. https://www.subpesca.cl/portal/616/articles-86241_documento.pdf

IFOP. (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de sardina austral, Región de Los Lagos, año 2024. Subsecretaría de Economía y EMT. Septiembre 2024. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2024/P-483278.pdf

A2.5	**A2.5 The assessment is made publicly available.**
Outcome	*Pass*

Rationale

Stock assessment reports and other scientific data, including monitoring programs, are available on IFOP website (IFOP, 2024b). Information on decisions made by the Scientific and Technical and Management Committees can be found on SUBPESCA website (SUBPESCA 2024b,c)

References

IFOP (2024b). https://www.ifop.cl/

SUBPESCA (2024b). Comité de manejo Sardina austral. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse03

SUBPESCA (2024c). Comité Científico de Pesquerías de Pequeños Pelágicos. https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#collapse06

A3 Harvest strategy

A3.1	**A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.**
Outcome	*Pass*

Rationale

In Chile, the management of Falkland sprat fishing is governed by the LGPA and the Regulation of Fishing of Hydrobiological Resources. SERNAPESCA plays a key role in regulating the fishery by providing authorizations for vessels to carry out extractive fishing activities and by setting catch quotas based on scientific assessments and stock data to ensure the sustainability of the resource. These quotas, reviewed and updated annually, are based on scientific recommendations, historical data, and biannual surveys. Total Allowable Catches (TACs) are divided into categories for research, industrial, and artisanal fisheries. While TACs are set at the start of the fishing season, they can be adjusted mid-year based on acoustic and fishery surveys. The LGPA mandates that catch

recommendations be provided as a range, with the lower boundary set at 80% of the MSY.

Additional management measures include regulating the fishing season, enforcing minimum catch, and controlling fishing effort to limit total mortality. Temporary closures are imposed when high numbers of juvenile Falkland sprat are detected. Workshops provided by the government also promote best fishing practices, including measures to reduce discards and bycatch. These regulations are continuously updated in response to scientific studies and changes in the status of the resource, ensuring the long-term sustainability of the Falkland sprat fishery and the broader marine ecosystem.

The LGPA, under Articles 8 and 9, mandates the development of a Management Plan for fisheries with closed access or those declared as fully exploited, under recovery or in early development regimes. Falkland sprat fishery in the Los Lagos Region operates under a general access regime, associated to a fully exploited state and access for new users has been suspended since 2012. To comply with the law, a Management Committee was formed for the creation of a Management Plan, which was approved in November 2023, along with a Recovery Program (Res. Ex. CERO PAPEL N° 00358-2023) [SUBPESCA, 2023].

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SUBPESCA. (2023). Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse05

Resolución Exenta 1498 de 2020, suspende transitoriamente la inscripción en el registro artesanal de la pesquería de sardina austral, región de los Lagos.

Res. Ex. CERO PAPEL N° 00358 de 2023 Aprueba Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos.

A3.2	**A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.**
Outcome	*Pass*

Rationale

The last 3 years (2020- 2023) the Falkland sprat landings in regions X and XI haven't exceed the CBA, which is set according to the Scientific Committee advice. (Table 3) [SERNAPESCA 2021, 2022, 2024c].

Table 3. Falkland sprat Biologically Acceptable Catch (CBA), landing and % of quota used in regions X and XI in Chile

fishery (SERNAPESCA 2021, 2022, 2024c).

Falkland sprat	Artisanal		
Year	CBA	Landing	% quota usage
2023	8,752	3,255	37%
2022	12,142	11,108	91%
2021	19,912	15,863	80%

References

SERNAPESCA. (2021). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2023/10/ifpa_2021_0.pdf

SERNAPESCA. (2022). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2023/11/ifpa_2022.pdf

SERNAPESCA. (2024c). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

A3.3	**A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**
Outcome	*Pass*

Rationale

The Fisheries Act (LGPA) does not establish prohibitions of commercial fisheries when stocks are below the spawning biomass limit. Instead, a resource recovery plan must be implemented. Management committees are required to elaborate and implement such recovery plans (Article 9 of LGPA); implying reductions in fishing mortality at levels below or equal to FMSY. Several closures on the fishery have been established over the year, mostly related to the achievement of the TAC for the period (SERNAPESCA, 2024d).

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SERNAPESCA. (2024d). Cierre de Cuotas.https://www.sernapesca.cl/informacion-utilidad/cierre-de-cuotas/

A4 Stock status

A4.1	**A4.1**	**The stock is at or above the target reference point; OR IF NOT: the stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure; OR IF NOT: the stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.**
Outcome	*Pass*	

Rationale

The CCT-PP pointed in October 2024 that the stock of Falkland sprat is leaving the state pf overexploitation in 2023 towards a state of full exploitation in 2024, with a spawning biomass around the maximum sustainable yield (BDMSY) and above the spawning biomass limit, and no overfishing is occurring (BD/BMSY = 0.99, F/FMSY = 0.26) [Figure 2]. However, the CCT-PP noted that these estimates were preliminary and must be confirmed once the catch and structure data for the second half of 2024 are available. This was the last information available about the status of the stock at the conclusion of this assessment. As explained in A.3.1 and A.4.1, Chilean has a system for restraining catches, which does not imply on prohibitions of commercial fisheries when stocks are below the spawning biomass limit. Instead, a resource recovery plan must be implemented. A Management Plan along with a Recovery Program was approved in November 2023 for this stock (Res. Ex. CERO PAPEL N° 00358-2023) [SUBPESCA, 2023], as the stock was considered depleted in 2022.

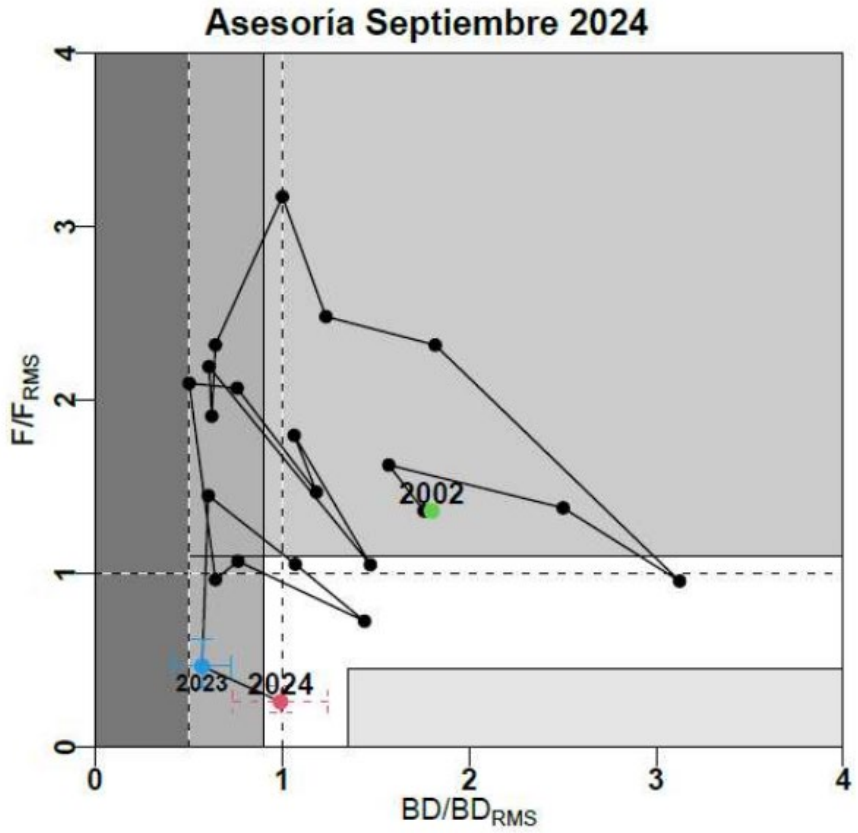

Figure 2. Diagram of the exploitation phases of the Falkland sprat, Los Lagos Region, from the September 2024 assessment. The axes are standardized to the values that generate the proxy MSY. The blue cross corresponds to the confidence intervals of the BD/BDRMSY and F/FMSY ratios. The year with a segmented cross corresponds to "Preliminary status", the solid cross to "Complete status" (CCT-PP, 2024).

References

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

SUBPESCA. (2023). Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse05

Res. Ex. CERO PAPEL N° 00358 de 2023 Aprueba Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos.

SUBPESCA. (2024). Acta de la sexta sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

Species Name: Araucanian herring (*Strangomera bentincki*)

A1 Data collection

A1.1	**A1.1 Landings data are collected such that the fishery-wide removals of this species are known.**
Outcome	*Pass*

Rationale

SERNAPESCA is responsible for operating the official landing certification program. Article 63E of LGPA establishes that: "*The holders of any instrument that authorizes the extraction of the industrial fraction of the global quota or fishing authorizations, as well as the artisanal owners of vessels of a length equal to or greater than 12 meters, the artisanal owners of vessels registered in pelagic fisheries with the purse seine gear, whatever their length, and the owners of transport vessels must submit to the Service the landing information by fishing trip referred to in article 63 of this law, submitting to the certification procedure established by the Service*."

According to the 2023 Fisheries and Aquaculture Statistical Yearbook issued by SERNAPESCA, the total Araucanian herring landings reported for regions V – X was 410,355t, being 277t in Los Lagos (Table 4).

Table 4. Total Araucanian herring landing by region in 2023 (SERNAPESCA 2023).

Species	Region								Total
	V	VI	VII	XVI	VIII	IX	XIV	X	
Araucanian herring	117	-	-	-	362,611	-	47,350	277	410,355

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía

SERNAPESCA (2023). Anuarios Estadísticos de Pesca y Acuicultura. https://www.sernapesca.cl/informacion-utilidad/anuarios-estadisticos-de-pesca-y-acuicultura/

A1.2	**A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.**
Outcome	*Pass*

Rationale

The evaluation of the biological status of the Araucanian herring stock in the Central Southern region of Chile (Valparaíso Region to Los Lagos Region) is based on a biological scale model, for which the following information was collected for the last stock assessment (IFOP 2024c):
1. SERNAPESCA landing statistics corrected by IFOP for the years 1998 to 2001, corresponding

to the period 1996/97-2023/24 (catch assumption 2023/24). 2. Series of discard percentages updated between 2017/18 to 2021/22. 3. Catch information at age and individual weights at age, from the "Monitoring Program for the Main National Fisheries (Pelagic Fisheries)" from 1996/97 to 2023/24. 4. Series of acoustic biomasses and age compositions from summer (years 2000-2024) and autumn (years 2003-2024) cruises from the IFOP cruise program on hydroacoustic evaluation of Araucanian herring recruitment between the Valparaíso and Los Lagos Regions. 5. Scientific and technical publications related to life cycle parameters (natural mortality and maturity).
References IFOP. (2024c). Tercer Informe (Final). Convenio de Desempeño 2023. Estatus y Posibilidades de Explotación Biológicamente Sustentable de Sardina Común, Región de Valparaíso a la Región de Los Lagos, año 2024. Subsecretaría de Economía y EMT | Julio 2024

A2 Stock assessment

A2.1	**A2.1** **A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.**
Outcome	*Pass*
Rationale The stock assessment is carried out by the IFOP at the end of each year and establishes advice on precautionary capture quota based on projections of future recruitment. This evaluation is updated twice a year as data are generated from the annual research cruises that carry out hydroacoustic evaluation monitoring program, which allows estimating the abundance and biomass of recruits. The first cruise takes place in January (RECLAS), after which the first update of the advice is carried out and analyzes the need to update the quota before the fishery season begins in March. In May, another cruise is carried out (PELACES) and with these results the second update of the advice is carried out, which is applied for the rest of the year of the fishery operation during the exploitation season (Figure 3) (SUBPESCA 2016). The results generated by the IFOP from each stock assessment are presented to the CCT-PP of the SUBPESCA, who review the information an validate the advice.	

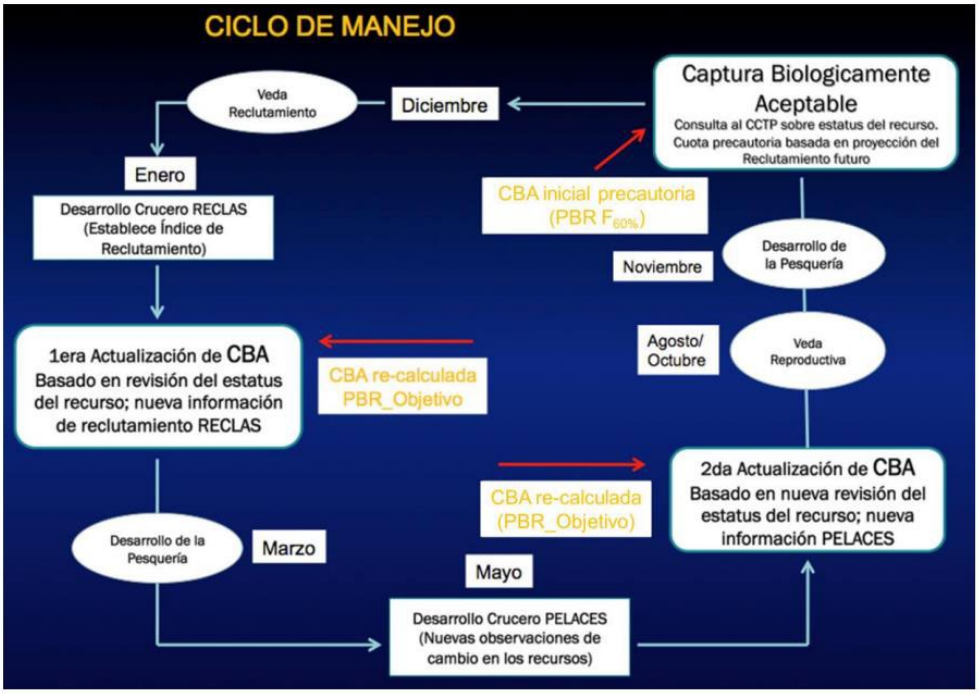

Figure 3. Management cycle of the Araucanian herring in in the Central-Southern region of Chile (SUBPESCA 2016).

References

SUBPESCA. (2016). Comité de manejo Anchoveta y Sardina común. Plan de manejo para la pesquería de sardina común y anchoveta V a la X regiones. https://www.subpesca.cl/portal/616/w3-propertyvalue-52833.html#collapse05

A2.2	**A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.**
Outcome	*Pass*

Rationale

There is a biological frame of reference that establishes the proxy values used by the CCT-PP to take management decision of the Araucanian herring fishery according to the stock assessment results. The procedures for calculating PBR and species-specific reference frameworks are based on the study "Revision of Biological Reference Points (Maximum Sustainable Yield) in National Fisheries" (Payá *et al*., 2014). During its first workshop, conducted in collaboration with international experts, a three-tier system was developed to derive species-specific MSY for Chilean fisheries. Payá *et al*. (2014) proposed to use a fishing mortality level that reduces the virgin spawning biomass to 55% (55%BD0) as the management target. This level of reduction corresponds to 60% of the spawning biomass per recruit (60%BDPR). Therefore, the equilibrium F60% from the spawning biomass per recruit (BDPR) analysis is used as the target, serving as a proxy for MSY. A biomass limit of 27.5% of the virginal biomass was also proposed. The CCT-PP accepted the recommendations of the PBRs on the Session N°5/2014.

In the last CCT-PP session available for the Araucanian herring stock published in the end of October 2024 (CCT-PP N°06/2024), the PBRs presented on Table 5 were considered for establishing the CBA 2025.

Table 5. Criteria for CBA 2025 used by the CCT-PP (CCT-PP 2024).

RECURSO	*Proxy* F_{RMS} ($año^{-1}$)	*Proxy* B_{RMS} (toneladas)	B_{lim} (toneladas)
Anchoveta Zona Norte	F55% BDPR 0,82	55% BDPR (ó 50%B0) 624.000	25% B0 312.000
Anchoveta Regiones Atacama y Coquimbo.	F60% BDPR 0,70	60% BDPR (ó 55 %B0) 59.500	27,5% B0 29.750
Anchoveta Regiones Valparaíso a Los Lagos.	$F_{60\% BDPR}$ 0,47	60% BDR (ó 55 %B0) 481.000	27,5% B0 240.500
Sardina Común Regiones Valparaíso a Los Lagos.	$F_{60\% BDPR}$ 0,31	60% BDPR (ó 55 %B0) 841.000	27,5% B0 420.500
Sardina Austral Regiones Aguas Interiores (A.I.) Los Lagos.	F60% BDPR 0,30	60% BDPR (ó 55 %B0) 28.290	27,5% B0 14.145

References

Payá, I., Canales, C., Bucarey, D., Canales, M., Contreras, F., Leal, E., Tascheri, R., Yáñez, A., Zúñiga, M. J., Clark, W., Dorn, M., Dunn, M., Fernández, C., Haddon, M., Klaer, N., & Sissenwine, M. (2014). Revisión de los puntos biológicos de referencia (Rendimiento Máximo Sostenible) en las pesquerías nacionales. Informe Final. Convenio II: Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales 2014. Subsecretaría de Economía y EMT / IFOP, Chile (pp. 1–49 +Anexos). https://www.researchgate.net/publication/301698303_Revision_de_los_puntos_biologicos_de_referencia_Rendimiento_Maximo_Sostenible_en_las_pesquerias_nacionales_Review_of_Biological_Reference_Points_for_main_chilean_fisheries

CCT-PP. (2014). Acta Sesión N°5/2014. https://www.subpesca.cl/portal/616/articles-86241_documento.pdf

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

A2.3	**A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.**
Outcome	*Pass*

Rationale

The assessments conducted by IFOP provides a robust framework for establishing biologically sustainable fishery removal volumes for the Araucanian herring stock in Valparaíso region to Los Lagos. It leverages continuous quality improvement programs such as the Continuous Improvement Program for the Quality of Scientific Advice - PMCCAC, addressing data gaps and aligning with expert recommendations to refine stock evaluation methods.

Based on the stock assessments performed by IFOP, the CCT-PP advices a CBA for the fishery. The last CCT-PP advice available for 2025 (CCT-PP 2024) considered two scenarios:

1. Without Law of Remnants: A total CBA that tends to the MSY equivalent to 249,044 tons, then, discounting the discard, a maximum CBA of 240,181 tons is determined, so the recommended CBA range is 192,144 to 240,181 tons.
2. With Law of Remnants: A total CBA that tends to the MSY and incorporates discard and alternative remainder of the 20%, equivalent to 180,851 tons, so the capture range recommended biologically acceptable is 144,680 to 180,851 tons.

For the estimation of both CBA ranges, a discard discount equivalent to 3.56% was considered, a scenario of recent recruitments (2023-2024) and a 20% risk of not reaching the management objective, equivalent to a 20% safeguard for the scenario that does not incorporate remnants, and 40% for the scenario that incorporates them.

The Law of Remnants (Law No. 21.525) plays a key role in shaping the quotas available to artisanal fisheries. It allows unused quotas from the previous year to be transferred, provided certain conditions are met: at least 10% of the global catch quota must remain uncaptured, and the fishery must not be declared depleted or collapsed by the Scientific Committee. However, the transferred remainder cannot exceed 30% of the global quota from the preceding year (DORC 2022). This law emerged in response to challenges faced during 2021 due to the Covid-19 pandemic, which resulted in significant unextracted quotas. Supported by biomass studies ensuring the sustainability of the resource, the law aims to alleviate economic pressures on artisanal fishing communities, allowing them to recover from the pandemic's effects while adhering to conservation principles (CDDC 2023).

Together, these measures reflect the balance sought between sustainable resource management and the socioeconomic needs of fishing communities. By integrating scientific advice with legal mechanisms such as the Law of Remnants, fisheries management seeks to maintain long-term sustainability while addressing immediate challenges.

References

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

CDDC. (2023). Cámara de Diputadas y Diputados Chile. Boletín No. 16386-21. https://www.camara.cl/verDOC.aspx?prmID=75507&prmTipo=FICHAPARLAMENTARIA&prmFICHATIPO=DIP&prmLOCAL=0

DORC. (2022). Diario Oficial de la República de Chile. Ministerios de Economía, Fomento y

Turismo. Ley Num. 21.525. https://www.subpesca.cl/portal/615/articles-117122_documento.pdf

A2.4	**A2.4 The assessment is subject to internal or external peer review.**
Outcome	*Pass*
Rationale Stock assessments are conducted by the IFOP and then the results presented to the relevant management and scientific and technical scientific committees, where the information provided is reviewed, discussed and the advice is validated. These committees comprise representatives from both the artisanal and industrial fishing sectors across various regions, along with SERNAPESCA, SUBPESCA, and other relevant institutions. These peer reviews can be considered both internal and external as members of committees may also be outside the assessment process. When necessary, it is common practice of Chilean authorities' commission external reviews for validating the studies, measures and methodologies applied in the management of the fisheries. For example, the procedures for calculating Biological Reference Points and species-specific reference frameworks for national fisheries were discussed in workshops in collaboration with international and national experts (Payá *et al*., 2014, CCT-PP, 2014).	
References Payá, I., Canales, C., Bucarey, D., Canales, M., Contreras, F., Leal, E., Tascheri, R., Yáñez, A., Zúñiga, M. J., Clark, W., Dorn, M., Dunn, M., Fernández, C., Haddon, M., Klaer, N., & Sissenwine, M. (2014). Revisión de los puntos biológicos de referencia (Rendimiento Máximo Sostenible) en las pesquerías nacionales. Informe Final. Convenio II: Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales 2014. Subsecretaría de Economía y EMT / IFOP, Chile (pp. 1–49 +Anexos). https://www.researchgate.net/publication/301698303_Revision_de_los_puntos_biologicos_de_referencia_Rendimiento_Maximo_Sostenible_en_las_pesquerias_nacionales_Review_of_Biological_Reference_Points_for_main_chilean_fisheries CCT-PP. (2014). Acta Sesión N°5/2014. https://www.subpesca.cl/portal/616/articles-86241_documento.pdf	

A2.5	**A2.5 The assessment is made publicly available.**
Outcome	*Pass*
Rationale Stock assessment reports and other scientific data, including monitoring programs, are available on IFOP website (IFOP, 2024c). Information on decisions made by the Scientific and Technical and Management Committees can be found on SUBPESCA website (SUBPESCA 2024c,d).	
References	

IFOP (2024c). https://www.ifop.cl/
SUBPESCA (2024d). Comité de manejo Anchoveta y Sardina común.
https://www.subpesca.cl/portal/616/w3-propertyvalue-52833.html

SUBPESCA (2024c). Comité Científico de Pesquerías de Pequeños Pelágicos.
https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#collapse06

A3 Harvest strategy

A3.1	**A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.**
Outcome	*Pass*

Rationale

In Chile, the management of Araucanian herring fishing is governed by the LGPA and the Regulation of Fishing of Hydrobiological Resources. SERNAPESCA plays a key role in regulating the fishery by providing authorizations for vessels to carry out extractive fishing activities and by setting catch quotas based on scientific assessments and stock data to ensure the sustainability of the resource. These quotas, reviewed and updated annually, are based on scientific recommendations, historical data, and biannual surveys. Total Allowable Catches (TACs) are divided into categories for research, industrial, and artisanal fisheries. While TACs are set at the start of the fishing season, they can be adjusted mid-year based on acoustic and fishery surveys. The LGPA mandates that catch recommendations be provided as a range, with the lower boundary set at 80% of the MSY.

Additional management measures include regulating the fishing season, enforcing minimum catch, and controlling fishing effort to limit total mortality. Temporary closures are imposed when high numbers of juvenile Araucanian herring are detected. Workshops provided by the government also promote best fishing practices, including measures to reduce discards and bycatch. These regulations are continuously updated in response to scientific studies and changes in the status of the resource, ensuring the long-term sustainability of the Araucanian herring fishery and the broader marine ecosystem.

The LGPA, under Articles 8 and 9, mandates the development of a Management Plan for fisheries with closed access or those declared as fully exploited, under recovery or in early development regimes. Araucanian herring in the Valparaíso region to Los Lagos operates under a general access regime, associated to a fully exploited state and access for new users has been suspended since 2000. To comply with the law, a Management Committee was formed for the creation of a Management Plan, which was approved in 2016 (Res. Ex. N° 2746-2016).

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

Plan de manejo para la pesquería de sardina común y anchoveta V a la X regiones. https://www.subpesca.cl/portal/616/articles-94523_documento.pdf

Res. Ex. N° 2746-2016 Apruerba Plan de Manejo para la Pesquería Sardina Común y Anchoveta V a X Redión.

A3.2	**A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.**
Outcome	*Pass*

Rationale

The last 3 years (2020- 2023) the Araucanian herring landing in regions V-X for industrial fishing, and in regions V-X and XIV haven't exceed the CBA. (Table 6) (SERNAPESCA 2021, 2022, 2023).

Table 6. Araucanian herring Biologically Acceptable Catch (CBA), landing and % of quota used in the Central-Southern region in Chile fishery (SERNAPESCA 2021, 2022, 2024c).

Araucanian herring	Industrial			Artisanal		
Year	CBA	Landing	% quota usage	CBA	Landing	% quota usage
2023	1,666	961	58%	205,030	169,589	83%
2022	6,075	5,446	90%	246,317	110,903	45%
2021	407	0	0%	350,387	299	85%

References

SERNAPESCA. (2021). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2023/10/ifpa_2021_0.pdf

SERNAPESCA. (2022). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2023/11/ifpa_2022.pdf

SERNAPESCA. (2024c). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

A3.3	**A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**

Outcome	*Pass*

Rationale

The Fisheries Act (LGPA) does not establish prohibitions of commercial fisheries when stocks are below the spawning biomass limit. Instead, a resource recovery plan must be implemented. Management committees are required to elaborate and implement such recovery plans (Article 9 of LGPA); implying reductions in fishing mortality at levels below or equal to F_{MSY}. Several closures on the fishery have been established over the year, mostly related to the achievement of the TAC for the period (SERNAPESCA 2024d).

As example, in 2021 the industrial Araucanian herring fishing was suspended to prevent further overexploitation because the stock's biomass was below the limit reference point. The assessment of the status of the stock and the subsequent decision to suspend industrial fishing was based on scientific studies, recommendations to protect the resource, and according to the LGPA. The temporary suspension of fishing is a measure that is implemented to ensure resource recovery. (IFOP 2021, SERNAPESCA 2024d).

References

IFOP. (2021). Informe Anual de Evaluación del Estado de los Recursos Pesqueros. Instituto de Fomento Pesquero. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2021/P-581168.pdf

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SERNAPESCA. (2024d). Cierre de Cuotas.https://www.sernapesca.cl/informacion-utilidad/cierre-de-cuotas/

A4 Stock status

A4.1	**A4.1 The stock is at or above the target reference point; OR IF NOT: the stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure; OR IF NOT: the stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.**
Outcome	*Pass*

Rationale

The CCT-PP pointed in October 2024 that the stock of Araucanian herring is in a state of overexploitation, reaching a spawning biomass of 13% under the BDMSY, but above the biomass limit and mortality of fishing in the FMSY (BD/BDMSY=0,87 y F/FMSY=0,56)[Figure 4] [CCT-PP 2024].

The Fisheries Act (LGPA) does not establish catch restrictions when stocks are below the spawning biomass limit. Instead, a resource recovery plan must be implemented. Management committees

are required to elaborate and implement such recovery plans (Article 9 of LGPA); implying reductions in fishing mortality at levels below or equal to FMSY. Several closures on the fishery have been established over the year, mostly related to the achievement of the TAC for the period and also when high proportions of juvenile Araucanian herring have been detected (SERNAPESCA 2024d). Moreover, in 2021 the industrial Araucanian herring fishing was suspended to prevent further overexploitation because the stock's biomass was below the limit reference point.

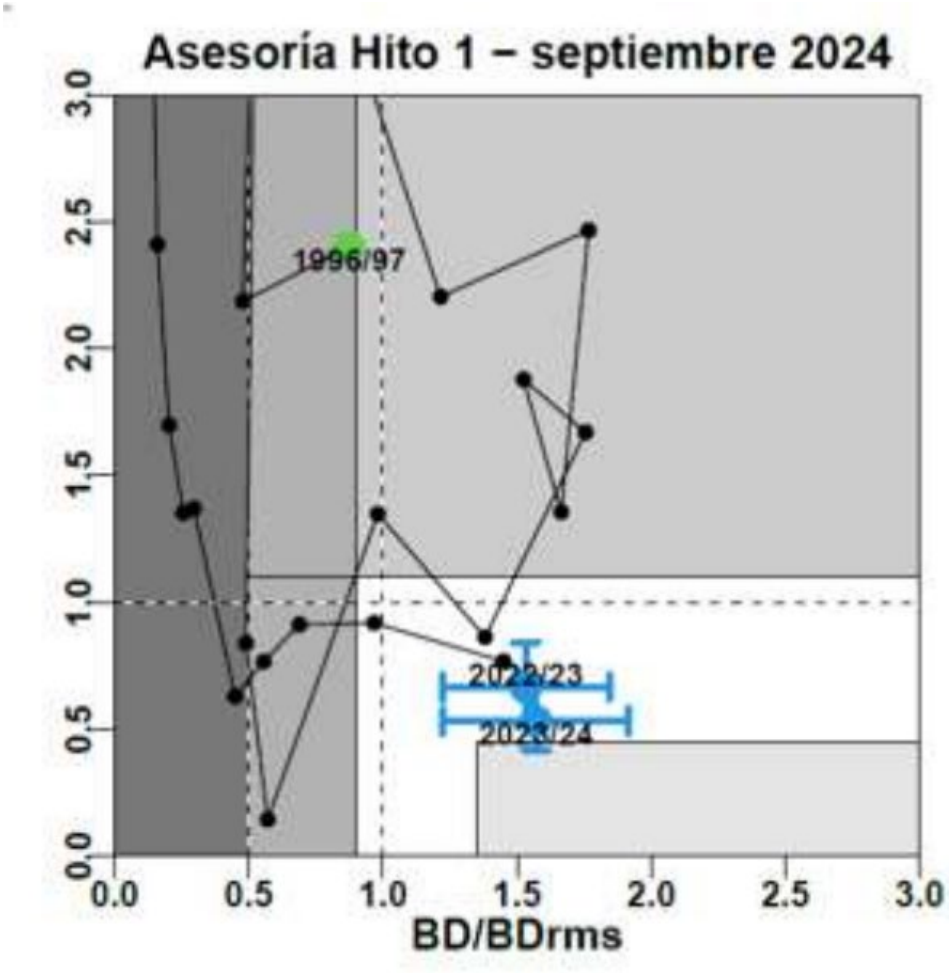

Figure 4. Kobe diagram for the Araucanian herring in Valparaíso region to Los Lagos. The blue dot represents the condition for the year 2022/23 and more recently 2023/24 and the lines represent the 95% confidence intervals for this estimate (CCT-PP, 2024).

References

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

IFOP. (2021). Informe Anual de Evaluación del Estado de los Recursos Pesqueros. Instituto de Fomento Pesquero. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2021/P-581168.pdf

SERNAPESCA. (2024d). Cierre de cuotas. https://www.sernapesca.cl/informacion-utilidad/cierre-de-cuotas/

Species Name: Anchovy (*Engraulis ringes*)

A1 Data collection

A1.1	**A1.1 Landings data are collected such that the fishery-wide removals of this species are known.**
Outcome	*Pass*

Rationale

SERNAPESCA is responsible for operating the official landing certification program. Article 63E of LGPA establishes that: "*The holders of any instrument that authorizes the extraction of the industrial fraction of the global quota or fishing authorizations, as well as the artisanal owners of vessels of a length equal to or greater than 12 meters, the artisanal owners of vessels registered in pelagic fisheries with the purse seine gear, whatever their length, and the owners of transport vessels must submit to the Service the landing information by fishing trip referred to in article 63 of this law, submitting to the certification procedure established by the Service*."

According to the 2023 Fisheries and Aquaculture Statistical Yearbook issued by SERNAPESCA, the total anchovy landings reported for regions V – X was 196,101t (Table 7).

Table 7. Total Araucanian herring landing by region in 2023 (SERNAPESCA 2023).

Species	Region								Total
	V	VI	VII	XVI	VIII	IX	XIV	X	
Anchovy	-	-	-	-	179,384	-	14,894	1,823	196,101

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía

SERNAPESCA (2023). Anuarios Estadísticos de Pesca y Acuicultura. https://www.sernapesca.cl/informacion-utilidad/anuarios-estadisticos-de-pesca-y-acuicultura/

A1.2	**A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.**
Outcome	*Pass*

Rationale The evaluation of the biological status of the Araucanian herring stock in the Central Southern region of Chile (Valparaíso Region to Los Lagos Region) is based on a biological scale model, for which the following information was collected for the last stock assessment (IFOP 2024d): 1. SERNAPESCA landing statistics corrected by IFOP for the years 1998 to 2001, corresponding to the period 1996/97-2023/24 (catch assumption 2023/24). 2. Series of discard percentages updated between 2017/18 to 2021/22. 3. Catch information at age and individual weights at age, from the "Monitoring Program for the Main National Fisheries (Pelagic Fisheries)" from 1996/97 to 2023/24. 4. Series of acoustic biomasses and age compositions from summer (years 2000-2024) and autumn (years 2003-2024) cruises from the IFOP cruise program on hydroacoustic evaluation of Araucanian herring recruitment between the Valparaíso and Los Lagos Regions. 5. Scientific and technical publications related to life cycle parameters (natural mortality and maturity).
References IFOP. 2024d. Tercer Informe (Consolidado). Estatus y posibilidades de explotación biológicamente sustentable de anchoveta, Región de Valparaíso a la Región de Los Lagos, año 2024. Subsecretaría de Economía y EMT Julio, 2024.

A2 Stock assessment

A2.1	**A2.1** **A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.**
Outcome	*Pass*
Rationale The stock assessment is carried out by the IFOP at the end of each year and establishes advice on precautionary capture quota based on projections of future recruitment. This evaluation is updated twice a year as data are generated from the annual research cruises that carry out hydroacoustic evaluation monitoring program, which allows estimating the abundance and biomass of recruits. The first cruise takes place in January (RECLAS), after which the first update of the advice is carried out and analyzes the need to update the quota before the fishery season begins in March. In May, another cruise is carried out (PELACES) and with these results the second update of the advice is carried out, which is applied for the rest of the year of the fishery operation during the exploitation season (Figure 5) [SUBPESCA 2016]. The results generated by the IFOP from each stock assessment are presented to the CCT-PP of the SUBPESCA, who review the information an validate the advice.	

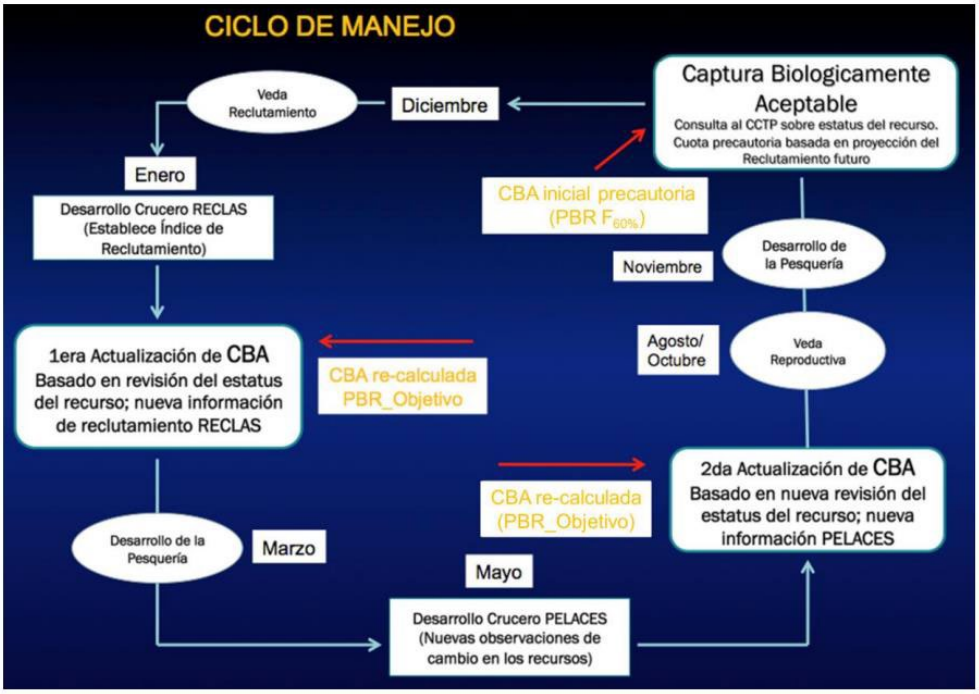

Figure 5. Management cycle of the anchovy in the Central-Southern region of Chile (SUBPESCA 2016).

References

SUBPESCA. (2016). Comité de manejo Anchoveta y Sardina común. Plan de manejo para la pesquería de sardina común y anchoveta V a la X regiones. https://www.subpesca.cl/portal/616/w3-propertyvalue-52833.html#collapse05

A2.2	**A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.**
Outcome	*Pass*

Rationale

There is a biological frame of reference that establishes the proxy values used by the CCT-PP to take management decision of the anchovy fishery according to the stock assessment results. The procedures for calculating PBR and species-specific reference frameworks are based on the study "Revision of Biological Reference Points (Maximum Sustainable Yield) in National Fisheries" (Payá *et al*., 2014). During its first workshop, conducted in collaboration with international experts, a three-tier system was developed to derive species-specific MSY for Chilean fisheries. Payá *et al*. (2014) proposed to use a fishing mortality level that reduces the virgin spawning biomass to 55% (55%BD0) as the management target. This level of reduction corresponds to 60% of the spawning biomass per recruit (60%BDPR). Therefore, the equilibrium F60% from the spawning biomass per recruit (BDPR) analysis is used as the target, serving as a proxy for MSY. A biomass limit of 27.5% of the virginal biomass was also proposed. The CCT-PP accepted the recommendations of the PBRs on the Session N°5/2014.

In the last CCT-PP session available for the central-southern anchovy stock published in the end of

October 2024 (CCT-PP N°06/2024), the PBRs presented on Table 8 were considered for establishing the CBA 2025.

Table 8. Criteria for CBA 2025 used by the CCT-PP (CCT-PP 2024).

RECURSO	*Proxy* F_{RMS} ($año^{-1}$)	*Proxy* B_{RMS} (toneladas)	B_{lim} (toneladas)
Anchoveta Zona Norte	F55% BDPR 0,82	55% BDPR (ó 50%B0) 624.000	25% B0 312.000
Anchoveta Regiones Atacama y Coquimbo.	F60% BDPR 0,70	60% BDPR (ó 55 %B0) 59.500	27,5% B0 29.750
Anchoveta Regiones Valparaíso a Los Lagos.	$F_{60\% BDPR}$ 0,47	60% BDR (ó 55 %B0) 481.000	27,5% B0 240.500
Sardina Común Regiones Valparaíso a Los Lagos.	$F_{60\% BDPR}$ 0,31	60% BDPR (ó 55 %B0) 841.000	27,5% B0 420.500
Sardina Austral Regiones Aguas Interiores (A.I.) Los Lagos.	F60% BDPR 0,30	60% BDPR (ó 55 %B0) 28.290	27,5% B0 14.145

References

Payá, I., Canales, C., Bucarey, D., Canales, M., Contreras, F., Leal, E., Tascheri, R., Yáñez, A., Zúñiga, M. J., Clark, W., Dorn, M., Dunn, M., Fernández, C., Haddon, M., Klaer, N., & Sissenwine, M. (2014). Revisión de los puntos biológicos de referencia (Rendimiento Máximo Sostenible) en las pesquerías nacionales. Informe Final. Convenio II: Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales 2014. Subsecretaría de Economía y EMT / IFOP, Chile (pp. 1–49 +Anexos). https://www.researchgate.net/publication/301698303_Revision_de_los_puntos_biologicos_de_referencia_Rendimiento_Maximo_Sostenible_en_las_pesquerias_nacionales_Review_of_Biological_Reference_Points_for_main_chilean_fisheries

CCT-PP. (2014). Acta Sesión N°5/2014. https://www.subpesca.cl/portal/616/articles-86241_documento.pdf

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

A2.3	**A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.**
Outcome	*Pass*

Rationale

The assessments conducted by IFOP provides a robust framework for establishing biologically sustainable fishery removal volumes for the anchovy in Valparaíso region to Los Lagos. It leverages continuous quality improvement programs such as the Continuous Improvement Program for the Quality of Scientific Advice - PMCCAC, addressing data gaps and aligning with expert recommendations to refine stock evaluation methods.

Based on the stock assessments performed by IFOP, the CCT-PP advices a CBA for the fishery. The last CCT-PP advice available for 2025 (CCT-PP 2024) considered two scenarios:
1. Without Law of Remnants: A total CBA that tends to the MSY equivalent to 281,066 tons, then, discounting the discard, a maximum CBA of 277,952 tons is determined, so the recommended CBA range is 222,361 to 277,952 tons.
2. With Law of Remnants: A total CBA that tends to the MSY and incorporates discard and alternative remainder of the 20%, equivalent to 222,582 tons, so the capture range recommended biologically acceptable is 178,065 to 222,582 tons.

For the estimation of both CBA ranges, a discard discount equivalent to 1.11% was considered, a scenario of recent recruitments (2022-2024) and a 30% risk of not reaching the management objective, equivalent to a 13% safeguard for the scenario that does not incorporate remnants, and 30% for the scenario that incorporates them.

The Law of Remnants (Law No. 21.525) plays a key role in shaping the quotas available to artisanal fisheries. It allows unused quotas from the previous year to be transferred, provided certain conditions are met: at least 10% of the global catch quota must remain uncaptured, and the fishery must not be declared depleted or collapsed by the Scientific Committee. However, the transferred remainder cannot exceed 30% of the global quota from the preceding year (DORC 2022). This law emerged in response to challenges faced during 2021 due to the Covid-19 pandemic, which resulted in significant unextracted quotas. Supported by biomass studies ensuring the sustainability of the resource, the law aims to alleviate economic pressures on artisanal fishing communities, allowing them to recover from the pandemic's effects while adhering to conservation principles (CDDC 2023).

Together, these measures reflect the balance sought between sustainable resource management and the socioeconomic needs of fishing communities. By integrating scientific advice with legal mechanisms such as the Law of Remnants, fisheries management seeks to maintain long-term sustainability while addressing immediate challenges.

References

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

CDDC. (2023). Cámara de Diputadas y Diputados Chile. Boletín No. 16386-21. https://www.camara.cl/verDOC.aspx?prmID=75507&prmTipo=FICHAPARLAMENTARIA&prmFICHATIPO=DIP&prmLOCAL=0

DORC. (2022). Diario Oficial de la República de Chile. Ministerios de Economía, Fomento y Turismo.Ley Num. 21.525. https://www.subpesca.cl/portal/615/articles-117122_documento.pdf

A2.4	A2.4 The assessment is subject to internal or external peer review.
Outcome	*Pass*

Rationale

Stock assessments are conducted by the IFOP and then the results presented to the relevant management and scientific and technical scientific committees, where the information provided is reviewed, discussed and the advice is validated. These committees comprise representatives from both the artisanal and industrial fishing sectors across various regions, along with SERNAPESCA, SUBPESCA, and other relevant institutions. These peer reviews can be considered both internal and external as members of committees may also be outside the assessment process. When necessary, it is common practice of Chilean authorities' commission external reviews for validating the studies, measures and methodologies applied in the management of the fisheries. For example, the procedures for calculating Biological Reference Points and species-specific reference frameworks for national fisheries were discussed in workshops in collaboration with international and national experts (Payá *et al*., 2014, CCT-PP, 2014).

References

Payá, I., Canales, C., Bucarey, D., Canales, M., Contreras, F., Leal, E., Tascheri, R., Yáñez, A., Zúñiga, M. J., Clark, W., Dorn, M., Dunn, M., Fernández, C., Haddon, M., Klaer, N., & Sissenwine, M. (2014). Revisión de los puntos biológicos de referencia (Rendimiento Máximo Sostenible) en las pesquerías nacionales. Informe Final. Convenio II: Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales 2014. Subsecretaría de Economía y EMT / IFOP, Chile (pp. 1–49 +Anexos). https://www.researchgate.net/publication/301698303_Revision_de_los_puntos_biologicos_de_referencia_Rendimiento_Maximo_Sostenible_en_las_pesquerias_nacionales_Review_of_Biological_Reference_Points_for_main_chilean_fisheries

CCT-PP. (2014). Acta Sesión N°5/2014. https://www.subpesca.cl/portal/616/articles-86241_documento.pdf

A2.5	A2.5 The assessment is made publicly available.
Outcome	*Pass*

Rationale

Stock assessment reports and other scientific data, including monitoring programs, are available on IFOP website (IFOP, 2024c). Information on decisions made by the Scientific and Technical and Management Committees can be found on SUBPESCA website (SUBPESCA 2024c,d).

References

IFOP (2024c). https://www.ifop.cl/

SUBPESCA (2024d). Comité de manejo Anchoveta y Sardina común.

https://www.subpesca.cl/portal/616/w3-propertyvalue-52833.html

SUBPESCA (2024c). Comité Científico de Pesquerías de Pequeños Pelágicos. https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#collapse06

A3 Harvest strategy

A3.1	**A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.**
Outcome	*Pass*

Rationale

In Chile, the management of anchovy fishing is governed by the LGPA and the Regulation of Fishing of Hydrobiological Resources. SERNAPESCA plays a key role in regulating the fishery by providing authorizations for vessels to carry out extractive fishing activities and by setting catch quotas based on scientific assessments and stock data to ensure the sustainability of the resource. These quotas, reviewed and updated annually, are based on scientific recommendations, historical data, and biannual surveys. Total Allowable Catches (TACs) are divided into categories for research, industrial, and artisanal fisheries. While TACs are set at the start of the fishing season, they can be adjusted mid-year based on acoustic and fishery surveys. The LGPA mandates that catch recommendations be provided as a range, with the lower boundary set at 80% of the MSY.

Additional management measures include regulating the fishing season, enforcing minimum catch, and controlling fishing effort to limit total mortality. Temporary closures are imposed when high numbers of juvenile Araucanian herring are detected. Workshops provided by the government also promote best fishing practices, including measures to reduce discards and bycatch. These regulations are continuously updated in response to scientific studies and changes in the status of the resource, ensuring the long-term sustainability of the Araucanian herring fishery and the broader marine ecosystem.

The LGPA, under Articles 8 and 9, mandates the development of a Management Plan for fisheries with closed access or those declared as fully exploited, under recovery or in early development regimes. Anchovy in the Valparaíso region to Los Lagos operates under a general access regime, associated to a fully exploited state and access for new users has been suspended since 2000. To comply with the law, a Management Committee was formed for the creation of a Management Plan, which was approved in 2016 (Res. Ex. N° 2746-2016).

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

Plan de manejo para la pesquería de sardina común y anchoveta V a la X regiones. https://www.subpesca.cl/portal/616/articles-94523_documento.pdf

Res. Ex. N° 2746-2016 Apruerba Plan de Manejo para la Pesquería Sardina Común y Anchoveta V a X Redión.

A3.2	**A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.**
Outcome	*Pass*

Rationale

The last 3 years (2020- 2023) the anchovy landings in regions V-X for industrial fishing, and in regions V-X and XIV haven't exceed the CBA (Table 9) [SERNAPESCA 2021, 2022, 2023].

Table 9. Anchovy Biologically Acceptable Catch (CBA), landing and % of quota used in the Central-Southern region in Chile fishery.

Anchovy	Industrial			Artisanal		
Year	CBA	Landing	% quota usage	CBA	Landing	% quota usage
2023	2,710	1,568	58%	124,898	101,468	81%
2022	1,647	934	57%	172,261	137,375	80%
2021	219	0	0%	207,546	157,815	76%

References

SERNAPESCA. (2021). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2023/10/ifpa_2021_0.pdf

SERNAPESCA. (2022). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2023/11/ifpa_2022.pdf

SERNAPESCA. (2024c). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

A3.3	**A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**
Outcome	*Pass*

Rationale The Fisheries Act (LGPA) does not establish catch restrictions when stocks are below limit biomass (for social and economic reasons and to facilitate further research). Instead, a resource recovery plan must be implemented. Management committees are required to elaborate and implement such recovery plans (Article 9 of LGPA); implying reductions in fishing mortality at levels below or equal to F_{MSY}. There is a mechanism of TAC in place, which involves three estimations and a review per year. Corrections of the TAC for the year are made when necessary and this information is available every March 15 and July 15. Several closures on the fishery have been established over the year, mostly related to the achievement of the TAC for the period and also when high proportions of juvenile Araucanian herring have been detected (SERNAPESCA, 2024d). For exemplify, the relationship between the condition of the stock and the establishment of TACs, from 2011 to 2018, the lowest quotas in the historical series have been assigned due to the decrease in the anchovy population indicators. When it was identified an increase in anchovy biomass levels in 2020 and 2021 the assigned quota was the highest in the last 11 years (IFOP, 2023b).
References IFOP. (2023b). TERCER INFORME (FINAL). Convenio de Desempeño 2022. Estatus y Posibilidades de Explotación Biológicamente Sustentable de Anchoveta, Región de Valparaíso a la Región de Los Lagos, año 2023 SUBSECRETARIA DE ECONOMIA Y EMT / Julio 2023. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2023/P-483260_Anchoveta_centro_sur.pdf SERNAPESCA. (2024d). Cierre de Cuotas.. https://www.sernapesca.cl/informacion-utilidad/cierre-de-cuotas/

A4 Stock status

A4.1	**A4.1**	**The stock is at or above the target reference point; OR IF NOT: the stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure; OR IF NOT: the stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.**
Outcome	*Pass*	
Rationale The CCT-PP pointed in October 2024 that the stock of anchovy is in a state of full exploitation (BD/BD_{MSY}=1.57 and F/F_{MSY}=0.53), with a reduced probability of overexploitation (p=0.002) and without overfishing for 2023/24 (Figure 6) [CCT-PP, 2024]. This condition is generated by the increase in recruitments in the years 2021/2020-2022/2023, the decrease in fishing mortality and high biomasses for recent years (CCT-PP, 2024).		

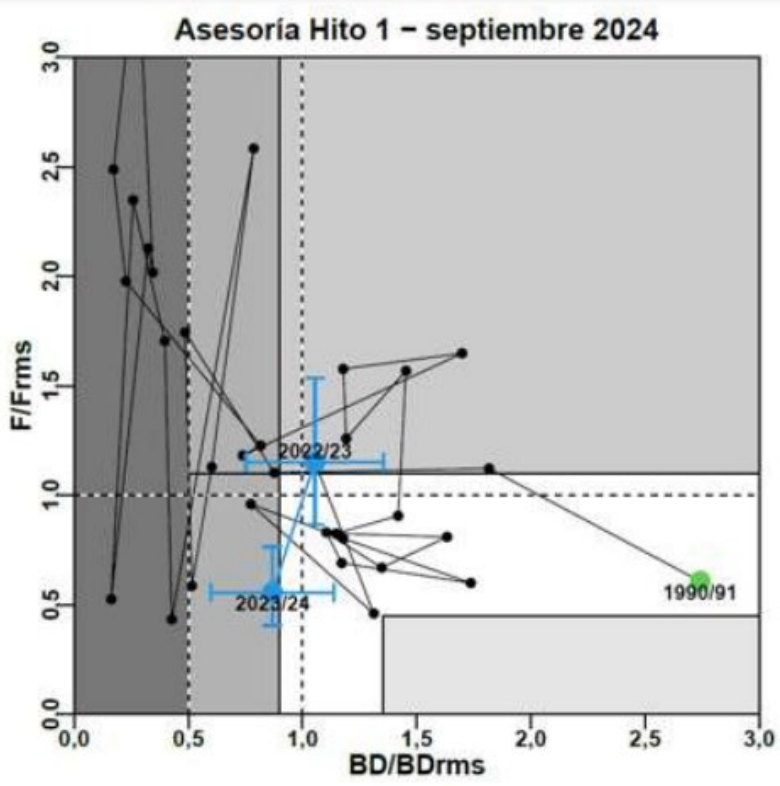

Figure 6. Diagram of the exploitation phases of anchovy in Valparaíso region to Los Lagos. The blue dot represents the condition for the year 2022/23 and more recently 2023/24 and the lines represent the 95% confidence intervals for this estimate (CCT-PP, 2024).

References

CCT-PP. (2024). Acta Sesión N°06/2024. https://www.subpesca.cl/portal/616/articles-123560_documento.pdf

Category B species

Category B species are assessed using a risk-based approach.

1.1. The risk matrix in Table B(a) shall be used when assessing a Category B species when estimates of Fishing mortality (F), Biomass (B) and reference points are available.

1.2. The risk matrix in Table B(b) shall be used when assessing a Category B species when no reference points are available.

B1	**A3.3**	**Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).**
Table used		

B(a) or B(b)	
Outcome	Choose an item.
Rationale	
References	

Category C species

1.3. All clauses must be met for a species to pass the Category C assessment.

1.3.1. Where a species fails this Category C clause, it should be assessed as a Category D species instead, except if there is evidence that the species is currently below the limit reference point.

C1.1	**C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.**
Outcome	Choose an item.
Rationale	
References	

C1.2	**C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.**
Outcome	Choose an item.
Rationale	
References	

Category D species

Category D species are assessed against a risk-based approach.

1.4. The Productivity-Susceptibility Analysis (PSA) in Table D(a) shall be used when assessing Category D species.

1.5. Table D(b) shall be used to calculate the overall PSA risk rating for the Category D species.

1.6. Should the PSA indicate a high risk, further assessment shall be completed against the

requirements in Table D(C).

Productivity Susceptibility Analysis (PSA) and scores

Table D(a) provides detailed values and scores for the species productivity and susceptibility attributes and attributes, the assessor shall use Table D(a) to the PSA table.
Table D(b) is used to calculate the overall PSA risk rating for the Category D species.

Species name	Mote sculpin (*Normanichthys crockeri*) [*mote*][4]	
Productivity attributes	**Value**	**Score**
Average age at maturity	Unknown	-
Average maximum age	Unknown	-
Fecundity	Unknown	-
Average maximum size	11	1
Average size at maturity	Unknown	1
Reproductive strategy	Broadcast spawner	1
Mean Trophic Level (MTL)	2.8	2
Density dependence (to be used when scoring invertebrate species only)	NA	-
Susceptibility attributes		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	>30% (The fish is endemic of the southeast Pacific)	3
Encounterability: The position of the stock/ species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Precautionary (lack of data)	3
Selectivity of gear type: Potential of the gear to retain species	Precautionary (lack of data)	3
Post-capture mortality (PCM): The chance that, if captured, a species would be released and	Retained	3

[4] Data obtained from Froese, R. and D. Pauly. Editors. 2024.FishBase. World Wide Web electronic publication. *Normanichthys crockeri* Clark, 1937 Mote sculpin https://fishbase.se/summary/4313

that it would be in a condition permitting subsequent survival		
Average productivity score		1.25
Average susceptibility score		3.00
PSA risk rating (from Table D(b))		Pass
Compliance rating		Pass

Productivity Susceptibility Analysis (PSA) and scores

Table D(a) provides detailed values and scores for the species productivity and susceptibility attributes and attributes, the assessor shall use Table D(a) to the PSA table.
Table D(b) is used to calculate the overall PSA risk rating for the Category D species.

Species name	Swarming squat lobster (*Munida gregaria*) [*langostino de los canales*]	
Productivity attributes	**Value**	**Score**
Average age at maturity	Unknown	-
Average maximum age	Unknown	-
Fecundity	500-7,545 eggs[5]	2
Average maximum size	7.5 cm[6]	1
Average size at maturity	Females: 9 - and 12mm CL and males: 6 and 8mm CL[4]	1
Reproductive strategy	Demersal egg layers	2
Mean Trophic Level (MTL)	Unknown	-
Density dependence (to be used when scoring invertebrate species only)	Unknown	-
Susceptibility attributes		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	<10%	1
Encounterability: The position of the stock/ species within the water column relative to the fishing gear, and the position of the stock/species	Precautionary (lack of data)	3

[5] Vinuesa J.H, Reproduction of *Munida Gregaria* (Decapoda: Galatheidae) in San Jorge Gulf, Southwest Atlantic Ocean. Journal of Crustacean Biology, Volume 27, Issue 3, 1 July 2007, Pages 437–444, https://doi.org/10.1651/S-2787.1
[6] https://www.sealifebase.se/summary/Munida-gregaria.html

within the habitat relative to the position of the gear		
Selectivity of gear type: Potential of the gear to retain species	Precautionary (lack of data)	3
Post-capture mortality (PCM): The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Retained	3
Average productivity score		1.50
Average susceptibility score		2.50
PSA risk rating (from Table D(b))		Pass
Compliance rating		Pass

Further assessment for Category D species

Should the PSA indicate a high risk, further assessment shall be completed against the requirements D1 and D2 – Table D(c).

D1	**D1. The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.**
Outcome	Choose an item.
Rationale	
References	

D2	**D2. There is no substantial evidence that the fishery has a significant negative impact on the species.**
Outcome	Choose an item.
Rationale	
References	

Ecosystem requirements

This section, or module, assesses the impacts that the fishery under assessment may have on key ecosystem components: ETP species, habitat and the wider ecosystem.

2.1. All ecosystem criteria must be met (pass) for a fishery to pass the Ecosystem

Requirements.

2.1.1. The sub-criteria offer a structured evidence base to demonstrate that the fishery sufficiently meets the ecosystem criteria, it is not expected that sub-criteria are assessed independently of the main criterion.

E1 Impact on Endangered, Threatened or Protected species (ETP species)

E1.1	**E1.1 Information on interactions between the fishery and ETP species is collected.** *In reaching a determination for E1.1, the assessor should consider if the following is in place:*	
	E1.1.1 ETP species which may be directly affected by the fishery have been identified.	
	E1.1.2 Interactions between the fishery and ETP species are recorded and reported to management organisations.	
	E1.1.3 Collection and analysis of ETP information is adequate to provide a reliable indication of the impact the fishery has on ETP species.	
Outcome	*Pass*	

Rationale

Since 2012, Chile has developed a process of diagnosis, reduction, and control of discards and incidental catches in its fisheries, based on the application of Law No. 20.625 and its regulations. IFOP; through the Research Program on Discard and Capture Bycatch uses the following method to collect ETP bycatch information (SUBPESCA 2024e):

• Scientific observers on board: personnel properly trained and qualified to observe and record onboard commercial fishing operations, and various data (fishery/operational, biological, environmental) in specially designed forms. These forms recorded logbook information, records of accompanying fauna, biological sampling, proportion of species, discard activities, and incidental capture and mortality of birds, mammals, and sea turtles. When animals are caught, the observer determines the species, how many specimens ended up dead, and how many managed to survive.
• Self-reporting log: This is a form designed by the project that was delivered to fishing operators in all the ports where the fleets operate. Its delivery is mandatory in fisheries that are in a research program and volunteers that are in the monitoring phase in purse seine fisheries. The last section of the form requests information on the capture and incidental mortality of birds, sea turtles, and marine mammals.

Additionally, considering the challenges of controlling and recording discards and incidental catches at sea, the use of Image Recording Devices (DRI) (on-board cameras) and Electronic Logging Systems (SIBE) was recently made mandatory to monitor compliance with the measures to reduce these practices, with differentiated application depending on the type of fleet. (SUBPESCA 2024e).

Information is analyzed by IFOP and results are included in their annual final report of the Scientific Observer Program.

References

SUBPESCA (2024e). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

E1.2	**E1.2 The fishery has no significant negative impact on ETP species.** *In reaching a determination for E1.2, the assessor should consider if the following is in place:*
	E1.2.1 The information collected in relation to E1.1.3 indicates that the fishery does not have a significant negative impact on ETP species.
Outcome	*Pass*

Rationale

The records, made by scientific observers, of incidental capture and mortality of birds, sea turtles, and marine mammals that interacted with the fishing activities of artisanal purse seine fleets targeting Falkland sprat in Los Lagos Region in 204 hauls during the period January 2017 - December 2021 reported only species classified as “Near Threatened” or “Least Concern” by IUCN and none of these species are included in the CITES appendices (BirdLife International, 2018a,b, Cárdenas-Alayza *et al*., 2016) [IFOP, 2023]. Nevertheless, one of these species, the kelp gull (*Larus dominicanus*) is considered Endangered by Chile (DS 50/2008 MINEGPRES).

During the study period, 639 marine mammals (97.6%) and 16 coastal seabirds (2.4%) were recorded as incidental captures, with no interactions reported involving procellariiformes (Table 10). All marine mammal bycatch corresponded to the South American sea lion species, while the kelp gull and Franklin's gull represented 56% and 44%, respectively, of the seabirds caught incidentally by this fleet. Incidental mortality affected 2 sea lions (0.3%), 7 kelp gulls (78%), and all brown-hooded gull captured by this fleet. All these species are considered “Least Concern” by IUCN, which demonstrate that this fishery does not have significant negative impact on ETP species.

Table 10. Incidental capture and mortality by species in the artisanal purse seine fleet operating in the Los Lagos Region. Data from the scientific observers' registry of 204 fishing trips, during the period January 2017 - December 2021.

Nombre común	Nombre científico	Captura	Muertos	Mort (%)	TCI	CV_{TCI}	TMI	CV_{TMI}
Lobo marino común	*Otaria flavescens*	639	2	0,3	3,1	195	0,01	1.428
Gaviota cáhuil	*Larus maculipennis*	7	7	100	0,03	837	0,03	837
Gaviota dominicana	*Larus dominicanus*	9	7	78	0,04	880	0,03	1.058

Mort (%) = Mortalidad = Número de animales muertos/Número de animales capturados
Captura Incidental Promedio (CIP) = Número de animales capturados/Número de lances observados
Coeficiente de Variación Captura Incidental Promedio (CVCIP)
Mortalidad Incidental Promedio (MIP) = Número de animales muertos/Número de lances observados
Coeficiente de Variación Mortalidad Incidental Promedio (CVMIP)

References

BirdLife International. 2018a. *Larus dominicanus*. The IUCN Red List of Threatened Species 2018: e.T22694329A132542863. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22694329A132542863.en. Accessed on 19 December 2024.

BirdLife International. 2018b. *Larus maculipennis*. The IUCN Red List of Threatened Species 2018: e.T22694417A132548388. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22694417A132548388.en. Accessed on 19 December 2024.

Cárdenas-Alayza, S., Crespo, E. & Oliveira, L. 2016. *Otaria byronia.* The IUCN Red List of Threatened Species 2016: e.T41665A61948292. https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T41665A61948292.en. Accessed on 19 December 2024.

IFOP. 2023. INFORME FINAL. Convenio de Desempeño 2022. Programa de investigación y monitoreo del descarte y la captura de pesca incidental en pesquerías pelágicas, 2022-2023. SUBSECRETARÍA DE ECONOMÍA Y EMT / Agosto 2023.

E1.3	**E1.3 There is an ETP management strategy in place for the fishery.** *In reaching a determination for E1.3, the assessor should consider if the following is in place:*	
	E1.3.1	There are measures applied to the fishery which are designed to manage the impacts of the fishery on ETP species.
	E1.3.2	The measures are considered likely to achieve the objectives of regional, national and international legislation relating to ETP species.
Outcome	*Pass*	

Rationale

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), Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) 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.

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 LGPA establishes the requirements that must be met regarding to administrative and conservation measures, monitoring program of the plan and measures evaluation, training program and measures dissemination, code of good practices to reduce the catch of incidental fishing, and innovation and technological improvements in fishing gear that reduce bycatch. Following articles are relevant in this matter:

• Article 7° C, the return to the sea of all bycatch shall be mandatory, under handling protocols approved by the National Fisheries and Aquaculture Service.

• Article 4 letter c), is mandatory to carry on boats and ships devices or utensils to avoid or minimize by catch.

• Article 4 letter d), is mandatory to carry on boats to release specimens caught incidentally by fishing gear.

On 18 March 2017, the Executive Branch issued Supreme Decree N° 76 of 2015, establishing the use of DRI on industrial vessels and artisanal vessels of 15 meters or more to detect and record discards. The DRI system includes video cameras, vessel monitoring systems, and digital recorders, among others.

The list of protected species applicable for the bottom-trawling and purse-seine fisheries was updated by SUBPESCA in December 2019, through Resolution N° 3917-2019, in light of the results of the Research Programs for Discards in those fisheries. The list includes several species of chondrichthyans (sharks, rays, and chimaera). Moreover, the Exempt Resolution 3120/2021 established the mandatory release to the sea of chondrichthyans caught incidentally in purse seine, trawl, longline, spinel, and gillnet fisheries, at the national level.

To monitor and manage the ETP interaction with this fishery, there is a plan for reducing discards and incidental catches for the artisanal fishery of Falkland and its accompanying fauna, in the maritime area corresponding to the inland waters of the Los Lagos Region (R.Ex 2490/2021). All incidental catches must be reported and the plan orientates best practices, including changing the fishing area and communicating with the rest of the fleet when incidental catches occur, avoiding setting nets in areas with high incidental catch presence and suspending the fishing operation and discard the catches, allowing the incidental catch to be released back into the sea unharmed (SUBPESCA 2021).

Specific regulations have been implemented to reduce seabird capture and incidental mortality during fishing operations, as outlined in Exempt Resolutions No. 2110/2014, 2941/2019, and 2569/2021. These regulations mandate the use of deterrent devices, such as bird scaring lines, and the adoption of best fishing practices, including night setting and proper management of discards to prevent attracting birds. These measures apply to both industrial and artisanal longline fleets, as well as industrial trawler fleets (SUBPESCA 2024e). For purse seine fisheries, these practices are recommended but not mandatory, as there is no specific conservation plan for birds, nor is it included in the National Action Plan to Reduce Incidental Catches of Birds in Longline Fisheries (PAN-AM). Established in Chile in 2007, PAN-AM is currently being updated to include purse seine, trawl, and longline fisheries operating in both Chilean waters and the high seas. The updated plan aims to reduce incidental bird catches to below the Potential Biological Removal (PBR) level for species with available data. For species lacking sufficient data, the goal is a 20% reduction in marine bird mortality within five years for each impacted fishery (SBWG11 2023).

Exempt Decree 202100004 established a harvesting ban for sea lion up to 27th January 2031.

References

Ley General de Pesca y Acuicultura, contenida en Decreto N° 430 de 1991, del Ministerio de Economía.

SBWG11. 2023. Eleventh Meeting of the Seabird Bycatch Working Group. Actualización Plan de acción Nacional para reducir las capturas incidentales de aves marinas en Chile (PAN-AM/Chile). Edinburgh, United Kingdom, 15 - 17 May 2023. https://www.bmis-bycatch.org/system/files/zotero_attachments/library_1/BMJKDSVN%20-%202023%20-%20.pdf

SUBPESCA. (2021). Plan de Reducción del Descarte y de la Captura de Pesca Incidental para Pesquería Artesanales de Sardina Austral, y su Fauna Acompañante, Región de Los Lagos.

SUBPESCA. (2024e). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

E2 Impact on the habitat

E2.1	**E2.1**	**Information on interactions between the fishery and marine habitats is collected.** *In reaching a determination for E2.1, the assessor should consider if the following is in place:*
	E2.1.1	Habitats which may be directly affected by the fishery have been identified, including any habitats which may be particularly vulnerable.
	E2.1.2	Information on the scale, location and intensity of fishing activity relative to habitats is collected.
	E2.1.3	Collection and analysis of habitat information is adequate to provide a reliable indication of the impact the fishery has on marine habitats.
Outcome	*Pass*	

Rationale

The spatial information of the fishing operations is gathered through onboard observers and self-reports submitted by the fleet via fishing logbooks. Additionally, research and monitoring programs on discards and incidental catches in pelagic fisheries have been conducted annually as part of the plan to reduce discards and incidental catches in the artisanal fishery of sprat Falkland and its accompanying fauna. These programs focus on the maritime area corresponding to the inland waters of the Los Lagos Region. Spatial-temporal information about the fishery's operations has been collected and published in IFOP reports, providing estimates of the habitats encountered by

these fisheries (Figure 7). Thus, the fishing footprint of the vessels is well-documented and shows similar fishing grounds across all fishing seasons.

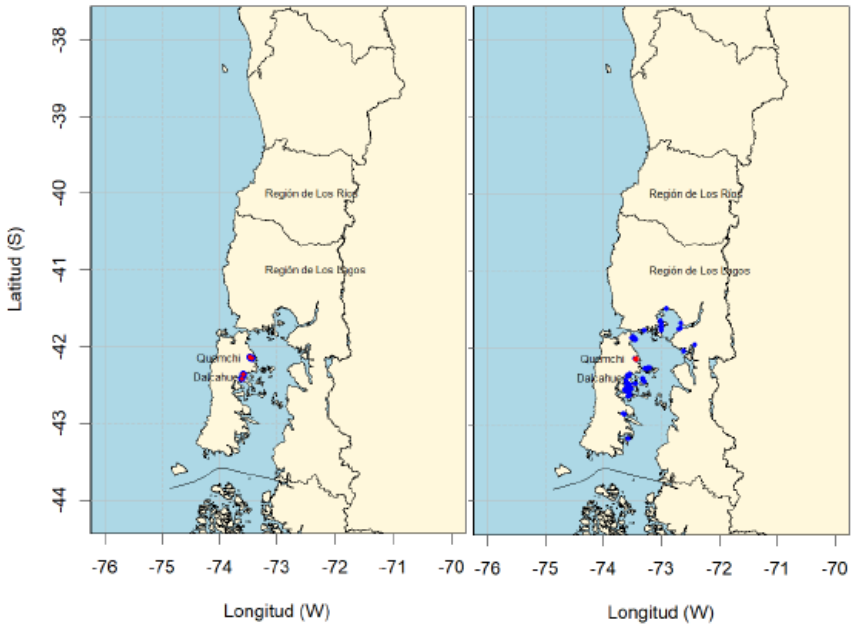

Figure 7. Geographic distribution of sets with bycatch (blue) and incidental mortality (red) reported in the artisanal purse seine fleet that operated in the Los Lagos Region during the period January 2017-December 2021. Left: coastal seabirds; right: common sea lions (IFOP, 2023).

Recently, Law No. 21.600 of 2023 created the Biodiversity and Protected Areas Service and the National System of Protected Areas. The Law has as objective the conservation of biological diversity and the protection of the country's natural heritage, through the preservation, restoration and sustainable use of genes, species, and ecosystems. It will depend administratively on the Ministry of the Environment, and will have as its main instrument the National System of Protected Areas. The new public service consolidates the powers and responsibilities related to biodiversity conservation, which are currently spread across various public and private entities. The law introduces mechanisms to protect biodiversity not only within protected areas but also beyond them, while also providing increased funding to support conservation efforts.

The Falkland sprat artisanal fishery uses purse seine gear, which is a surface gear used from coastal marine waters to ocean waters; thus, a purse seine does not come into contact with the seabed and it is considered a fishing gear that does not generate any impact in the habitat. Very occasionally in shallow water, the bottom of the net may lay on the seabed but as the gear is not dragged across the seabed there should little effect (FAO 2024, Sustain 2024, Chuenpagdee *et al*., 2003). Thus, information collected of the fishing footprint of the vessels is sufficient for providing a reliable indication of the impact that the fishery has on marine habitats.

References

Chuenpagdee, R.; Morgan, L.E.; Maxwell, S.M.; Norse, E.A.; Pauly, D. (2003). Shifting gears: Assessing collateral impacts of fishing methods in US waters. Front. Ecol. Environ., 1, 517–524

FAO. (2024). Fishing Gear types. Drifting longlines. Technology Fact Sheets. Fisheries and Aquaculture Division [online]. Rome. https://www.fao.org/fishery/en/geartype/233/en

IFOP. (2023). INFORME FINAL. Convenio de Desempeño 2022. Programa de investigación y monitoreo del descarte y la captura de pesca incidental en pesquerías pelágicas, 2022-2023. SUBSECRETARÍA DE ECONOMÍA Y EMT / Agosto 2023.

Ley núm. 21.600. Crea el servicio de biodiversidad y áreas protegidas y el sistema nacional de áreas protegidas. https://www.diariooficial.interior.gob.cl/publicaciones/2023/09/06/43646/01/2373337.pdf

Sustain. (2024). Purse seines. https://www.sustainweb.org/goodcatch/purse_seines/

E2.2	**E2.2 The fishery has no significant impact on marine habitats.** *In reaching a determination for E2.2, the assessor should consider if the following is in place:*
	E2.2.1 The information collected in relation to E2.1.3 indicates that the fishery does not have a significant negative impact on marine habitats.
Outcome	*Pass*

Rationale

Purse seine does not interact with any physical habitats (FAO 2024, Sustain 2024, Chuenpagdee *et al*., 2003), therefore, no evidence was found during the assessment about any kind of negative impact on physical habitats by the Falkland sprat fishery activity. The fishing grounds are well-defined, and the fishing footprint indicates that the vessels operate in the same areas year after year without moving to new positions. Consequently, the habitats typically affected are those that recover easily, allowing the fishing activity to continue in the same grounds year after year.

References

Chuenpagdee, R.; Morgan, L.E.; Maxwell, S.M.; Norse, E.A.; Pauly, D. (2003). Shifting gears: Assessing collateral impacts of fishing methods in US waters. Front. Ecol. Environ., 1, 517–524

FAO. (2024). Fishing Gear types. Drifting longlines. Technology Fact Sheets. Fisheries and Aquaculture Division [online]. Rome. https://www.fao.org/fishery/en/geartype/233/en

Sustain. (2024). Purse seines. https://www.sustainweb.org/goodcatch/purse_seines/

E2.3	**E2.3 There is a habitat management strategy in place for the fishery.** *In reaching a determination for E2.3, the assessor should consider if the following is in place:*
	E2.3.1 There are measures applied to the fishery which are designed to manage the impact of the fishery on marine habitats.
	E2.3.2 The measures are considered likely to prevent the fishery from having a significant negative impact on marine habitats.

Outcome	*Pass*
Rationale Purse seine does not interact with any physical habitats (FAO 2024, Sustain 2024, Chuenpagdee *et al*., 2003), therefore, there is no need for measures to be in place to minimize and mitigate negative impacts related to the interaction of the fishery with physical habitats. Nevertheless, there are some regulations and management measures in place. Recently, Law No. 21.600 of 2023 created the Biodiversity and Protected Areas Service and the National System of Protected Areas. The Law has as objective the conservation of biological diversity and the protection of the country's natural heritage, through the preservation, restoration and sustainable use of genes, species, and ecosystems. It will depend administratively on the Ministry of the Environment, and will have as its main instrument the National System of Protected Areas. The new public service consolidates the powers and responsibilities related to biodiversity conservation, which are currently spread across various public and private entities. The law introduces mechanisms to protect biodiversity not only within protected areas but also beyond them, while also providing increased funding to support conservation efforts.	
References	

E3 Impact on the ecosystem

E3.1	**E3.1 Information on the potential impacts of the fishery on marine ecosystems is collected.** *In reaching a determination for E3.1, the assessor should consider if the following is in place:*	
	E3.1.1	The main elements of the marine ecosystems in the area(s) where the fishery takes place have been identified.
	E3.1.2	The role of the species caught in the fishery within the marine ecosystem is understood, either through research on this specific fishery or inferred from other fisheries.
	E3.1.3	Collection and analysis of ecosystem information is adequate to provide a reliable indication of the impact the fishery has on marine ecosystems.
Outcome	*Pass*	
Rationale		

In Chile, studies have shown that small pelagic fish represent an important component in the diet of sea lions, birds, marine mammals, sharks, and other species of economic importance, such as horse mackerel and hake. These small pelagic fishes are crucial to coastal food webs as they transfer energy from plankton to large predators (Utne-Palm *et al*, 2009, Pikitch *et al*., 2012, Neira *et al.*, 2014). Falkland sprat is a key and highly vulnerable species in the southern channels. It plays a fundamental role in sustaining the ecosystem of the inner sea of Chiloé, as it is the most productive and dominant species among small pelagic fish. This importance has also contributed to the development and growth of the artisanal purse seine fishery in the region (Neira *et al*., 2004; Neira *et al*., 2004a; Medina *et al*., 2007; Neira *et al*., 2014), and the importance of this species has been recognized and considered in the management and recovery plan (SUBPESCA 2023)

Globally, it has been indicated that a reduction in the availability of these species can have direct and long-term impacts that can change the structure and functioning of an ecosystem (Pikitch *et al*. 2012).

The management of this fishery has a permanent annual research program by law (Article 91 LGPA) which is executed by IFOP. This program is made up of research and monitoring projects for this fishery in Los Lagos region, such as (SUBPESCA 2023):

- Status and possibilities of biologically sustainable exploitation
- Hydroacoustic evaluation of stocks in summer and autumn cruises
- Evaluation of spawning stock
- Monitoring of pelagic fisheries
- Basic fishery biological studies.

The data collected in these projects allow monitoring of the establishment and compliance of fishery management so that it is carried out in a sustainable manner and with the least possible impact on the ecosystem.

References

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Neira, S., and Arancibia, H. (2004). Trophic interactions and community structure in the central Chile marine ecosystem (33°Se39°S). Journal of Experimental Marine Biology and Ecology, 312: 349–366.

Neira, S., Arancibia, H., and Cubillos, L. (2004a). Comparative analysis of trophic structure of commercial fishery species off central Chile in 1992 and 1998. Ecological Modelling, 172: 233–248.

Neira, S., Arancibia, H., Barros, M., Castro, L., Cubillos, L., Niklitschek, E., Alarcón, R. (2014). Rol ecosistémico de sardina austral e impacto de su explotación en la sustentabilidad de otras especies de interés comercial. Informe Final Proyecto FIP 2012–15 (agosto). Universidad de Concepción, 242 pp + Anexos.

Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012). Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

SUBPESCA. (2023). Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse05

Utne-Palm, A. C., A. Salvanes, B. Currie, S. Kaartvedt, G. Nilsson, V. Braithwaite, J. Stecyk, M. Hundt, M. van der Bank, B. Flynn, G. Sandvik, T. Klevjer, A. Sweetman, V. Brüchert, K. Pittman, K. Peard, I. Lunde, R. Strandabø, M. Gibbons (2010). Trophic structure and community stability in an overfished ecosystem. Science, 329(5989), 333–336.

E3.2	**E3.2 There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.** *In reaching a determination for E3.2, the assessor should consider if the following is in place:* E3.2.1 The information collected in relation to E3.1.3 indicates that the fishery does not have a significant negative impact on marine ecosystems.
Outcome	*Pass*

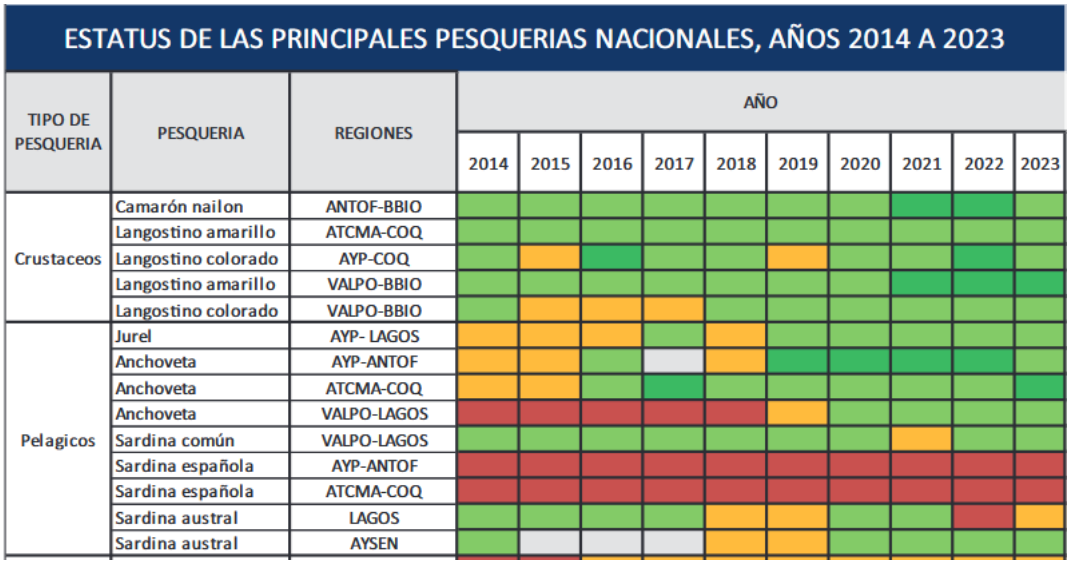
Rationale

The most likely mechanisms for the fishery to impact the ecosystem is through the removal of the target species; through impacts on non-target species & ETP species; and through physical impacts on marine habitats. These impacts are low for this fishery and there are measures in place to address the potential impacts that Falkland sprat could have on the ecosystem.

Historically, in most of the years the status of Falkland sprat fishery has been in “full exploitation” status (Table 11) (SUBPESCA 2024e). A fully exploited fishery is one whose biological point is at or near its maximum sustainable performance; considering that limit reference points (such as biomass limits and yield targets) are based on scientific studies that assess the status of the stock and its role in the ecosystem by taking into consideration how the exploitation of these fish affects other species and the overall balance of the marine ecosystem (SUBPESCA 2024e). Then, the extraction of the resource has not affected the ecosystem. In 2022, the species was considered depleted and a recovery plan was built for addressing this situation SUBPESCA, 2023), showing the commitment of the country on avoiding a significant impact on marine ecosystem with the removal of the species.

Table 11. Status of the crustaceans and pelagic fisheries in Chile from 2014 to 2023. Dark green = underexploited fishery,

green = fully exploited fishery, yellow = overexploited fishery, and red = depleted or collapsed fishery (SUBPESCA, 2024e).



ESTATUS DE LAS PRINCIPALES PESQUERIAS NACIONALES, AÑOS 2014 A 2023

TIPO DE PESQUERIA	PESQUERIA	REGIONES	AÑO									
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Crustaceos	Camarón nailon	ANTOF-BBIO										
	Langostino amarillo	ATCMA-COQ										
	Langostino colorado	AYP-COQ										
	Langostino amarillo	VALPO-BBIO										
	Langostino colorado	VALPO-BBIO										
Pelagicos	Jurel	AYP- LAGOS										
	Anchoveta	AYP-ANTOF										
	Anchoveta	ATCMA-COQ										
	Anchoveta	VALPO-LAGOS										
	Sardina común	VALPO-LAGOS										
	Sardina española	AYP-ANTOF										
	Sardina española	ATCMA-COQ										
	Sardina austral	LAGOS										
	Sardina austral	AYSEN										

References

SUBPESCA. (2023). Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse05

SUBPESCA (2024e). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

E3.3	**E3.3 There is an ecosystem management strategy in place for the fishery.** *In reaching a determination for E3.3, the assessor should consider if the following is in place:*	
	E3.3.1	There are measures applied to the fishery which are designed to manage the impacts of the fishery on marine ecosystems.
	E3.3.2	The measures are considered likely to prevent the fishery from having a significant negative impact on marine ecosystems.
Outcome	*Pass*	

Rationale

In Chile, the implementation of a fisheries management strategy has an ecosystem approach and considered the recommendations of FAO and other fisheries forums, aimed at ensuring ocean sustainability and food security. The adoption of plans to reduce discards and bycatch, and other related regulations (explained in previous sections of this assessment), together with the maintenance of a robust system of scientific monitoring and enforcement, have led to significant decreases in the levels of discards and bycatch (SUBPESCA 2024e).

Also, to ensure the sustainability of the Falkland sprat stock, the species is subject to two biological bans, one with the objective of protecting the recruitment process and the second to protect the maximum reproductive process. The application of both bans is subject to a decision criterion based on biological indicators, which are established by the CTT-PP (SUBPESCA 2023). These bans go hand-in-hand with the biologically acceptable quota (CBA) determination and re-evaluation process for the fishery, which ensures that the exploitation of the resources remains within the appropriate limits to avoid overexploitation and the triggering of impacts on the ecosystem.

References

SUBPESCA. (2023). Plan de Manejo y Programa de Recuperación para la Pesquería de Sardina Austral, Aguas Interiores, Región de Los Lagos. https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html#collapse05

SUBPESCA (2024e). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

Annex 1: External Peer Review report

Insert report from Fisheries Assessment Peer Review Group. Reference this report in Tables 3 & 4

Summary *Provide any information about the fishery that the reviewers feel is significant to their decision. This summary is used by the Certification Body in the Fishery Assessment Report.*
The assessor has delivered a clear, well-referenced report with thorough justification for all scoring decisions. The peer reviewer fully agrees with the assessment outcomes and scores, providing only minor comments. The assessment summary is clear and informative, effectively covering all key sections.
General comments on the draft report provided to the peer reviewer
Thanks

Peer reviewers should review the fishery assessment report with the primary objective of answering the key questions listed in the table below. When the situation is more complicated, reviewers may answer "See Notes" instead.

1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	Yes
2. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	Yes
3. Are the scores in the following sections consistent with the MarinTrust requirements (i.e. do the scores reflect the evidence provided)?	Yes
Section M – Management Requirements	Yes
Category A Species	Yes
Category B Species	Yes
Category C Species	Yes
Category D Species	Yes
Section E – Ecosystem Impacts	Yes

Detailed Peer Review Justification

Peer reviewers should provide support for their answers in the boxes provided, by referring to specific scoring issues and any relevant documentation as appropriate.
Detailed justifications are only required where answers given are one of the 'No' options. In other (Yes) cases, either confirm 'scoring agreed' or identify any places where weak rationales could be strengthened (without any implications for the scores).
Boxes may be extended if more space is required.

1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	Yes
Yes, the MT methodology has been properly applied, and the information provided in each section is sufficient to support the assigned scores.	
Certification Body response	
OK	

2. Does the species categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	Yes
Yes, the fishery categorization has been based on catch data from the Chilean Scientific Observer Program, which is considered the most reliable source of information. The species have been appropriately classified using the MT methodology.	
Certification Body response	
OK	

3. Is the scoring of the fishery consistent with the MarinTrust requirements, and clearly based on the evidence presented in the assessment report?	Yes
Yes, the scoring of the fishery is based on the best available and most up-to-date evidence (CCT-PP reports, etc).	
Certification Body response	
OK	

3a. Are the "Category A Species" scores clearly justified?	Yes
Three species—Falkland sprat, Araucanian herring, and anchovy—have been classified as Category A species. Although some of these species have faced challenges in the past, including stock depletion, the most recent stock assessments indicate that all three are currently above the Blim threshold, as required by the standard. Minor comments: A2.2 (All Species): I believe the fishing mortality target reference levels established by Paya et al., 2014 are the same for all pelagic species. Could you confirm if this is correct? A2.3 (All Species): Including the tables displaying TACs set and the percentage of usage is highly informative—great addition. Araucanian Herring: A4.1: The assessor states, "The Fisheries Act (LGPA) does not establish catch restrictions when stocks are below the spawning biomass limit." However, in the case of this species, the fishery was suspended in 2021 when its status was classified as depleted. What happened then?	
Certification Body response	
A.2.2 Yes, it is the same indeed. A2.3 I think you meant A.3.2 instead or A.2.3, but thanks. A.4.1 When the stock was considered depleted, a Management Plan along with a Recovery Program was built for this stock (Res. Ex. CERO PAPEL N° 00358-2023).	

3b. Are the "Category B Species" scores clearly justified?	n/a
No category B species identified in the catch.	
Certification Body response	
OK	

3c. Are the "Category C Species" scores clearly justified?	n/a
No category C species identified in the catch.	
Certification Body response	
OK	

3d. Are the "Category D Species" scores clearly justified?	Yes
Yes, two species (mote sculpin and Swarming squat lobster) have been identified as category D species. A PSA has been conducted. Although some of the productiviy attributes are unknown, scores seem to be adequate. Both species pass against table D(b)	
Certification Body response	
OK	

Are the scores in "Section M – Management Requirements" clearly justified?	Yes
Yes, the fishery's management system appears to be appropriate. Adequate information has been provided for all subsections, and the scores have been assigned accordingly, consistent with previous assessments in the same area. Only minor comments noted. M2.1: The data on the number and percentage of inspections is very informative. My only concern is whether there is any specific information available for the assessed fishery or the artisanal fishery in Region X, similar to what is provided in M2.2. M2.3: I recommend incorporating some of the information presented in M2.2 into this section to reinforce the claim that there is no substantial evidence of IUU fishing in the assessed fishery. The current details on laws and regulations alone do not sufficiently demonstrate this.	
Certification Body response	
M.2.1 No, the data is more general, it is not more specific than what it was already provided on the assessment. M.2.3 Good point. I have added some of the information from 2.1 an 2.2 now to complement the clause.	

Are the scores in "Section E – Ecosystem Impacts" clearly justified?	Yes
Yes, the information provided is sufficient. The fishery's ecosystem impacts are minimal, and a management strategy is in place to address any potential effects. However, in Section E3, I find a lack of consideration regarding the target and limit reference points established by IFOP/SUBPESCA in relation to international standards. This is particularly important given that the species in question is a key low-trophic species within the ecosystem. E1.2: No interactions with ETP species have been reported by the fishery. Specific data has been included—great! E1.3: The assessor states: "In the case of purse seine, these practices are suggested but not mandatory, since this fishery does not have a National Plan for Bird Conservation." This wording seems unclear—it would be more accurate to state that the purse seine fishery does not have a specific conservation plan derived from a national framework or plan. E.2 Since this is a purse seine fishery operating in midwaters, no interactions with the habitat are expected. However, I understand that there is a fishery operating closer to shore. In Peru, interactions between artisanal purse seines and coastal (shallow) habitats have been documented. I understand there is not available information on similar impacts in Chile. E2.1 In the first parragraph: "artisanal fishery of Falkland and its accompanying fauna" the word "sprat" is missing. Nice figure.	
Certification Body response	
E.1.2 Thanks. E.1.3 I agreed that it was odd. I rewrote the whole paragraph: Specific regulations have been implemented to reduce seabird capture and incidental mortality during fishing operations, as outlined in Exempt Resolutions No. 2110/2014, 2941/2019, and 2569/2021. These regulations mandate the use of deterrent devices, such as bird scaring lines, and the adoption of best fishing practices, including night setting and proper management of discards to prevent attracting birds. These measures apply to both industrial and artisanal longline fleets, as well as industrial trawler fleets (SUBPESCA 2024e). For purse seine fisheries, these practices are recommended but not mandatory, as there is no specific conservation plan for birds, nor is it included in the National Action Plan to Reduce Incidental Catches of Birds in Longline Fisheries (PAN-AM). Established in Chile in 2007, PAN-AM is currently being updated to include purse seine, trawl, and longline fisheries operating in both Chilean waters and the high seas. E.2 Yes, I could not find it at least. E.2.1 Thanks, I have added it now.	

Optional: General peer reviewer comments on the draft report
Just a final general observation on fisheries management in Chile: Based on the available information, the country appears to have a well-structured management system, including sound scientific advice, advisory committees, and implemented management plans—arguably one of the most comprehensive globally. However, when examining the status of marine resources, many have experienced significant declines, with some stocks being overfished or depleted. This raises the question of what might be missing. Is enforcement truly as effective as indicated, or are management decisions too lenient? It's unclear. That said, based on the information provided, the fishery meets the requirements to be certified.
Certification Body response
True, but there is also environmental factors that influence a lot on the region, specially climate change and ENSO events. It is hard to tell.