



## MarinTrust Whole fish fishery assessment report

Document TEM-002 (prev. FISH2) - Version 3.0

Issued June 2024 – Effective June 2024

Chile - Anchovy (*Engraulis ringens*) and Araucanian herring  
(*Strangomera bentincki*) - FAO 87, Chilean EEZ Regions V-X

*Re-approval*  
*WF12*

**Table 1: Whole fish fishery assessment scope**

<b>Fishery name</b>	Chile - Anchovy ( <i>Engraulis ringens</i> ) and Araucanian herring ( <i>Strangomera bentincki</i> ) - FAO 87, Chilean EEZ Regions V-X
<b>MarinTrust report code</b>	WF12
<b>Type 1 species (common name, Latin name)</b>	Anchovy ( <i>Engraulis ringens</i> ) and Araucanian herring ( <i>Strangomera bentincki</i> )
<b>Fishery location</b>	FAO 87, Chilean EEZ Regions V-X
<b>Gear type(s)</b>	Purse seine
<b>Management authority (country/state)</b>	Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA)

**Table 2: Applicant and Certification Body details**

<b>Application details</b>			
<b>Applicant(s)</b>	Iquique Sur (Corpesca SA), Sociedad Pesquera Landes SA, Coronel (Blumar SA), Lota Protein, Corral (Blumar SA), FoodCorp Chile SA, Industrias Isla Quihua SA, Alimentos Pesqueros SPA, Coquimbo (Orizon SA), Arica Sur, Glaciares SA (Fiordo Austral), Salmonoil SA (Fiordo Austral), Graneros SA (Fiordo Austral), Coronel (Orizon SA), San Vicente, Coronel (Camanchaca Pesca Sur SA), Mejillones (Corpesca SA), Pesquera Fiordo Austral SA		
<b>Applicant country</b>	Chile		
<b>Certification Body details</b>			
<b>Name of Certification Body</b>	LRQA		
<b>Contact Information for CB (e.g. email address/address/telephone number)</b>	E: mt-ca@lrqa.com LRQA, 4-5 Lochside Way, Edinburgh Park, EH12 9DT T: +44 800 092 0452		
<b>Fishery Assessor name</b>	Blanca Gonzalez		
<b>CB Peer Reviewer name</b>	Sam Peacock		
<b>Number of assessment days</b>	7	<b>Assessment period (mm/yyyy to mm/yyyy)</b>	July 2023 – July 2024

**Table 3: Assessment outcome**

<b>Assessment outcome (See Table 4 for a summary of assessment determination)</b>		Approve
<b>Approval validity</b>	Valid from (mm/yyyy): July 2024	Valid until (mm/yyyy): July 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
<p>The anchovy (<i>Engraulis ringens</i>) and araucanian herring (<i>Strangomera bentincki</i>) fishery in the South-central zone (Valparaíso to the Los Ríos region regions) in Chile is a direct fishery conducted by industrial and artisanal sectors, where both species are targeted. Target species represents &gt;99% of the fishery catch in both sectors, they are Least Concern species by the IUCN, are not listed in any CITES appendix, and the fishery is managed by SUBPESCA. Therefore, anchovy and araucanian herring were assessed as Category A species. Starry butterfish (<i>Stromateus stellatus</i>) and mote sculpin (<i>Normanichthys crockery</i>) were assessed as a Category D species, since they represent &gt;0.1% of the bycatch species of the fishery, they are not an ETP species, and its catch is not regulated.</p> <p>There is a robust management framework for the anchovy and araucanian herring 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 an 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 abased on the results a biologically acceptable quota (CBA) is set.</p> <p>The last stock assessment update was carried out in March 2024. Anchovy have a high spawning biomass and has an increasing trend with 63% above the <math>SSB_{MSY}</math>, with a 0.6% probability of overexploitation and 0% probability of collapse. Araucanian herring reached a spawning biomass of 23% under the <math>SSB_{MSY}</math>; however, <math>SSB</math> is still above the <math>SSB_{lim}</math>, with a probability of 0.78% of overexploitation and 0.03% of collapse.</p> <p>In the PSA starry butterfish awarded an average productivity score of 1.42 and an average susceptibility score of 3; while mote sculpin awarded an average productivity score of 1.2 and an average susceptibility score of 3. Both species passed against Table D3, indicating that the species are not vulnerable to this fishery.</p> <p>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 anchovy and araucanian herring fishery do not affect the habitat either, since purse seine do not interact with any physical habitat. Fishery management framework consider an ecosystem approach to ensure the long-term conservation</p>

and sustainable use of the resources while safeguarding the marine ecosystem.

The anchovy and araucanian herring fishery in the FAO 87, Chilean EEZ Regions V-X, passed all the Marin Trust requirements in this assessment, therefore its re-approval is recommended to be used as a raw material in Marine Trust certified products.

Last data accessed on July 27, 2024.

<b>Summary of CB peer review</b>	<p>This re-assessment of the Chilean anchovy and Araucanian herring fishery represents the first time the fishery has been assessed against Version 3 of the MT Responsible Sourcing Standard. The assessor has produced a clearly written and well-referenced report which provides adequate justification for all scores. The peer reviewer agrees with all of the outcomes of the assessment. In a number of areas, some brief recommendations for clarification have been provided, but overall the report is of a high standard.</p>
<b>Summary of external peer review (see Appendix 1 for the full peer review report)</b>	<p>The assessor has produced a clear, well-referenced report, offering thorough justification for all scoring decisions. The peer reviewer concurs with all the assessment outcomes and scores. Only minor comments provided.</p> <p>Just a couple of comments for section M(not sure where to include comments for that section).</p> <p>M1.3 Isn't INPESCA a private institute? I was under the impression that it was IFOP responsible for providing "official" scientific advice to SUBPESCA for management decisions. Could you clarify this for me?</p> <p>M1.4 Also, I think I may have asked this before in a previous review, but I don't remember the response. Regarding the "coverage indicator" you mentioned—9.99 inspection activities for every 10 artisanal landings—how is this figure calculated? I haven't been able to find any information about it in the documents provided.</p>
<b>Notes for on-site auditor</b>	<p>It would be useful to corroborate if Starry butterflyfish (<i>Stromateus stellatus</i>) and mote sculpin (<i>Normanichthys crockeri</i>) caught in the anchovy (<i>Engraulis ringens</i>) and Araucanian herring (<i>Strangomera bentincki</i>) artisanal fishery are used for reduction purposes.</p>

## 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	Anchovy ( <i>Engraulis ringens</i> )	A1	Pass
		A2	Pass
		A3	Pass
		A4	Pass
	Araucanian herring ( <i>Strangomera bentincki</i> )	A1	Pass
		A2	Pass
		A3	Pass
		A4	Pass
Category B	NA	NA	
Category C	NA	NA	
Category D	Starry butterflyfish ( <i>Stromateus stellatus</i> )	Pass	
	Mote sculpin ( <i>Normanichthys crockeri</i> )	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)
Anchovy ( <i>Engraulis ringens</i> )	FAO 87, Chile EEZ Regions V to X	No	Least Concern <sup>1</sup>	66.61%	Y	A
Araucanian herring ( <i>Strangomera bentincki</i> )	FAO 87, Chile EEZ Regions V to X	No	Least Concern <sup>2</sup>	33.10%	Y	A
Starry butterflyfish ( <i>Stromateus stellatus</i> )	FAO 87, Chile EEZ Regions V to X	No	Least Concern <sup>3</sup>	0.25%	N	D
Mote sculpin ( <i>Normanichthys crockeri</i> )	FAO 87, Chile EEZ Regions V to X	No	Not evaluated	0.11%	N	D

### Rationale

The Fisheries Development Institute (IFOP) in Chile have 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 catch composition of the anchovy and the araucarian

herring fishery in the South-central zone (Valparaíso to the Los Ríos region) by the industrial and artisanal sector. Target species represents 99.97% of the catch in the industrial fishery and 99.47% of the catch in the artisanal fishery (table 1). (IFOP 2023)

Table 1. Industrial and artisanal total catch in the anchovy and Araucanian herring fishery in the South-central zone of Chile (IFOP 2023).

Industrial				Artisanal			
Species	Common name	Tonnes	%	Species	Common name	Tonnes	%
<i>Strangomera bentincki</i>	Sardina común	4025.5	82.74	<i>Strangomera bentincki</i>	Sardina común	128,421.4	50.49
<i>Engraulis ringens</i>	Anchoveta	838.1	17.23	<i>Engraulis ringens</i>	Anchoveta	124,595.6	48.98
<i>Merluccius gayi gayi</i>	Merluza común	1.4	0.03	<i>Stromateus stellatus</i>	Pampanito	643.3	0.25
				<i>Normanichthys crockeri</i>	Mote	286.4	0.11
				<i>Merluccius gayi gayi</i>	Merluza común	156.1	0.06
				<i>Ethmidium maculatum</i>	Tritre	130.1	0.05
				<i>Prolatilus jugularis</i>	Blanquillo	59.1	0.02
				<i>Odontesthes regia</i>	Pejerrey de mar	47.3	0.02
				<i>Serionella porosa</i>	Cojinova porosa	35.5	0.01
				<b>Total</b>		<b>254,374.8</b>	<b>100.00</b>

Anchovy and Araucanian herring were both assessed as Category A species, since both are a Least Concern species by the IUCN, are not listed in any CITES appendix, the fishery is managed by the Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA), and they represent more than 99% of the fishery's total catch.

Starry butterfish and mote sculpin were included in the assessment since they represent 0.25% and 0.11% respectively of the total catch in the artisanal fishery. The starry butterfish is a Least Concern species by the IUCN, while the mote sculpin haven't been evaluated by this organization. None of them is in any CITES appendix, nor are under any specific management regulation (SUBPESCA 2024). Therefore, both species were assessed as Category D.

## References

1 <https://www.iucnredlist.org/species/183775/102904317>

2 <https://www.iucnredlist.org/species/98841657/98887036>

3 <https://www.iucnredlist.org/species/183520/8127584>

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. [http://biblioteca.ifop.cl/exlibris/aleph/u23\\_1/adam\\_objects/ifp01/view/4/000040092.pdf](http://biblioteca.ifop.cl/exlibris/aleph/u23_1/adam_objects/ifp01/view/4/000040092.pdf)

SUBPESCA (2024). Subsecretaría de Pesca y Acuicultura. Nómina descarte sardina común - anchoveta 2024. Expediente cero papel N°59/2024. [https://www.subpesca.cl/portal//615/articles-121037\\_documento.pdf](https://www.subpesca.cl/portal//615/articles-121037_documento.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.

- 1.6. All management criteria must be met (pass) for a fishery to pass the Management requirements.
  - 1.6.1. 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

<b>M1.1</b>	<p><b>M1.1 There is an organisation responsible for managing the fishery.</b></p> <p><i>In reaching a determination for M1.1, the assessor should consider if the following is in place:</i></p>
	<p>M1.1.1 The management and administration organisations within the fishery are clearly identified.</p>
	<p>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.</p>
	<p>M1.1.3 Fishers have access to information and/or training materials through nationally recognised organisations.</p>
<b>Outcome</b>	<i>Pass</i>
<p><b>Rationale</b></p> <p>Several organizations are responsible for managing the fishery:</p> <ul style="list-style-type: none"> <li>• The Undersecretary of Fisheries and Aquaculture (SUBPESCA) is the responsible for the design and implementation of fisheries and aquaculture policies, regulations and management measures (SUBPESCA 2024a).</li> <li>• The National Fisheries and Aquaculture Service (SERNAPESCA) supervises and manages the protection of the hydrobiological resources and their environment by promoting compliance with regulations (SERNAPESCA 2024a).</li> <li>• The National Fisheries Society (SONAPESCA) is a union federation that brings together the main unions and actors in industrial fishing in Chile that promotes a responsible fishing with rigorous and strict compliance with the regulations established to achieve the sustainability of the resource and comprehensive care of the sea; in collaboration with the authority to eradicate non-compliance with the fishing quotas within the Chilean coasts (SONAPESCA 2024a).</li> <li>• The Fisheries Development Institute (IFOP) generates the necessary information to manage and regulate the capture of resources, establish integrated management of fisheries,</li> </ul>	

deploy a management and technical assistance model, develop sustainable aquaculture and fishing, and safeguard the scientific documentary heritage in Chile (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>

SONAPESCA. (2024a). Quiénes Somos. <https://www.sonapesca.cl/quienes-somos/#1471544785863-41fb10f5-a197>

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/quienes-somos/nuestra-organizacion/>

<b>M1.2</b>	<b>M1.2 Fishery management organisations are legally empowered to take management actions.</b>
	<i>In reaching a determination for M1.2, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>In compliance to Article 4.2, SUBPESCA is legally empowered to take management actions through the General Law on Fisheries and Aquaculture No. 18.892 of 1989, and its amendments (LGPA 2023). Thus, SUBPESCA should develop management plans for any fishery with restricted access, and to review and update these plans every five years, determine Biological Reference Points (BRP's) for all targeted stocks, determine Biologically Acceptable Catches (BAC's), and develop resource recovery plans.</p>	



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. Information and how to get the authorization can be found in SUBPESCA webpage.

The Registry of Related Activities (RAC) arises in the framework of the implementation of Law No. 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 the Undersecretariat of Fisheries and Aquaculture (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 the National Service of Fishing and Aquaculture (SERNAPESCA) which has the responsibility of carrying out training and registration in the Registry, maintaining the integrity and veracity of the data. (SUBPESCA 2023).

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.

**References**

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

FAO (2024). <https://www.fao.org/legal-services/news/detail/es/c/1680976/>

NLP (2024). Nueva Ley de Pesca. <https://www.gob.cl/nuevaleydepesca/#:~:text=La%20nueva%20normativa%20promueve%20que,el%20tipo%20espec%C3%ADfico%20de%20pesquer%C3%ADa.>

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](https://www.subpesca.cl/portal/618/articles-121456_recurso_1.pdf)

<b>M1.3</b>	<b>M1.3 There is an organisation responsible for collecting data and (scientifically) assessing the fishery.</b>
	<i>In reaching a determination for M1.3, the assessor should consider if the following is in place:</i>
	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.
<b>Clause outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>SERNAPESCA compile the required information for creating the Fisheries and Aquaculture Statistical Yearbooks, where landing information can be found (SERNAPESCA 2024a, 2024b).</p> <p>The Fisheries Development Institute (IFOP) supports the sustainable development of the country's fishing and aquaculture sector by creating alliances with Chilean universities and institutions of the national and international sector for managing and collecting fishing biological data (IFOP 2024), including the Fisheries Research Institute (INPESCA), which is dedicated to developing multidisciplinary scientific research aimed at the evaluation, diagnosis, prediction and analysis of the main fisheries under exploitation specifically in the central-southern region of Chile, as well as to evaluate the environmental impact of the production process through timely and efficient environmental management. (INPESCA 2024a).</p> <p>SUBPESCA have a Technical Scientific Committee for Small Pelagic Fisheries conformed by people from different institution and organizations and sector, who is an advisory and/or consultation bodies of the Undersecretariat on scientific matters relevant to the administration of fisheries by doing updates on stock status and catch projections and make official recommendations to the authorities. Acts, reports and news resulting from the Committee are transparent processes published in the SUBPESCA webpage (SUBPESCA 2024a)</p>	
<b>References</b>	
<p>IFOP (2024a). Quienes somos. <a href="https://www.ifop.cl/quienes-somos/">https://www.ifop.cl/quienes-somos/</a></p> <p>INPESCA. (2024a). Instituto de Investigación Pesquera (INPESCA). <a href="http://www.inpesca.cl/index.php/nosotros/acerca-de/">http://www.inpesca.cl/index.php/nosotros/acerca-de/</a></p> <p>SERNAPESCA. (2024a). ¿Qué es SERNAPESCA?. <a href="http://www.sernapesca.cl/que-es-sernapesca">http://www.sernapesca.cl/que-es-sernapesca</a></p> <p>SERNAPESCA. (2024b). Anuarios estadísticos de pesca y acuicultura. <a href="http://www.sernapesca.cl/informacion-utilidad/anuarios-estadisticos-de-pesca-y-acuicultura">http://www.sernapesca.cl/informacion-utilidad/anuarios-estadisticos-de-pesca-y-acuicultura</a></p> <p>SUBPESCA (2024a). Comité Científico de Pesquerías de Pequeños Pelágicos. <a href="https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#">https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#</a></p>	

<b>M1.4</b>	<b>M1.4 The fishery management system is based on the principles of sustainable fishing and a precautionary approach.</b>
	<i>In reaching a determination for M1.4, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>The General Law on Fisheries and Aquaculture No. 18.892 of 1989, and its amendments (LGPA 2023), states in Article 1° B., that the objective of this law is the conservation and sustainable use of hydrobiological resources, through the application of the precautionary approach, an ecosystem approach in fishing regulation and the safeguarding of the marine ecosystems in which these resources exist.</p> <p>Within the framework of the national fisheries policy and to achieve the objective established in the previous article, the following must be taken into consideration when adopting conservation and administration measures as well as when interpreting and applying the law:</p> <ul style="list-style-type: none"> <li>a) establish long-term objectives for the conservation and administration of fisheries and protection of their ecosystems, as well as the periodic evaluation of the effectiveness of the measures adopted.</li> <li>b) apply the precautionary principle in the administration and conservation of hydrobiological resources and the protection of their ecosystems, meaning: More caution must be exercised in the administration and conservation of resources when scientific information is uncertain or unreliable. or incomplete, and the lack of sufficient, unreliable or incomplete scientific information should not be used as a reason to postpone or not adopt conservation and management measures. (LGPA 2023).</li> </ul>	
<b>References</b>	
<p>LGPA. (2023). Ley General de Pesca y Acuicultura. <a href="https://www.subpesca.cl/portal/615/articles-88020_documento.pdf">https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</a></p>	

<b>M1.5</b>	<b>M1.5 There is a clearly defined decision-making process which is transparent, with processes and results made publicly available.</b>
	<i>In reaching a determination for M1.5, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>
<p><b>Rationale</b></p> <p>By law the SUBPESCA established 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 member are nominated by public competition. The Management Committee must establish the period in which the plan will be evaluated, which may not exceed five years from its formulation. (LGPA 2023)</p> <p>There is a specific anchovy and Araucanian herring management committee (SUBPESCA 2024a) and Technical Scientific Committee for Small Pelagic Fisheries (SUBPESCA 2024b) that meet regularly. Acts from the management committee are available since 2014 (SUBPESCA 2024a) and those from the Scientific Committee are available since 2013 (SUBPESCA 2024b), documents are free access and can be found in the SUBPESCA webpage.</p>	
<p><b>References</b></p> <p>SUBPESCA (2024a). Comité de manejo Anchoqueta y Sardina común. <a href="https://www.subpesca.cl/portal/616/w3-propertyvalue-52833.html#collapse03">https://www.subpesca.cl/portal/616/w3-propertyvalue-52833.html#collapse03</a></p> <p>SUBPESCA (2024b). Comité Científico de Pesquerías de Pequeños Pelágicos. <a href="https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#">https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#</a></p> <p>LGPA. (2023). Ley General de Pesca y Acuicultura. <a href="https://www.subpesca.cl/portal/615/articles-88020_documento.pdf">https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</a></p>	

## M2 Surveillance, control and enforcement

<b>M2.1</b>	<p><b>M2.1 There is an organisation responsible for monitoring compliance with fishery laws and regulations.</b></p> <p><i>In reaching a determination for M2.1, the assessor should consider if the following is in place:</i></p>
	<p>M2.1.1 There is an organisation responsible for monitoring compliance with specific monitoring, control and surveillance (MCS) mechanisms in place.</p>
	<p>M2.1.2 There are relevant tools or mechanisms used to minimise IUU fishing activity.</p>

	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.
<b>Outcome</b>	<i>Pass</i>
<p><b>Rationale</b></p> <p>In Chile, The National Fisheries and Aquaculture Service (SERNAPESCA) is the entity responsible to supervise and manage the fisheries behaviour to promote compliance with regulations. They have presence in the 16 regions of the country, thanks to a staff of 900 people and 46 provincial offices that include 2 insular offices (SERNAPESCA 2024a).</p> <p>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.</p> <p>According to the SERNAPESCA’s 2023 Report on Oversight Activities in Fishing and Aquaculture (SERNAPESCA 2024c), 65,723 inspection activities were carried out, representing a decrease of 29.2% compared to 2022. The satellite tracking system allowed monitoring 94 industrial vessels and 401 artisan vessels, achieving a total of 122,637 remote inspections. This satellite tracking system represented 65.2% of the total inspection activities carried out. The landing certification program carried out inspections at landing points, which made possible to certify 40,574 landings throughout the year. Also, 2,785 joint operations were carried out in commercial and recreational fishing, representing 46.9% more than 2022.</p> <p>An approximation of the level of coverage of the inspection of fishing regulations, by subsector (industrial and artisanal), can be obtained from the quotient between:</p> <ul style="list-style-type: none"> <li>•The total number of field inspection activities executed in the year in each subsector, carried out at all stages of the fishing activity, that is, from extraction to export or consumption; satellite monitoring is also included, carried out at 100% of the industrial fleet and the relevant artisanal fleet.</li> <li>•The total number of fishing operations that occurred in the year in each subsector, quantified as the number of landing declarations made by each subsector, that is, for each landing reported by artisanal and industrial shipowners.</li> </ul> <p>In this way, a coverage indicator is calculated with the 2023 data equal to 9.99 inspection activities are carried out for every 10 artisanal landings, while 59.1 activities are carried out for every 10 industrial landings. Inspection activities coverage increased 12.2% for the artisanal and 14.4% for industrial fisheries in contrast to 2022. (SERNAPESCA 2024c).</p>	
<b>References</b>	

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

SERNAPESCA. (2024b). Plan de Fiscalización. [https://www.sernapesca.cl/app/uploads/2023/11/mfi\\_20-040-00-000\\_plan\\_de\\_fiscalizacion.pdf](https://www.sernapesca.cl/app/uploads/2023/11/mfi_20-040-00-000_plan_de_fiscalizacion.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](https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf)

<b>M2.2</b>	<b>M2.2 There is a framework of sanctions which are applied when infringements against laws and regulations are discovered.</b>
	<i>In reaching a determination for M2.2, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>

**Rationale**

The General Law on Fisheries and Aquaculture No. 18.892 of 1989, and its amendments (LGPA 2023), includes under Title 9 the framework for infringements and sanctions. Particularly, Article 108 from Title 9 states that violations of this Law, its regulations or the fishing administration measures, will be penalized by fines, suspension of the captain, closure of establishments, confiscation of gear and hydrobiological species or products derived from the infringement.

SERNAPESCA through the fiscalization plan monitors the compliance of the fisheries management at sea and land (SERNAPESCA 2023). Those who commit infringements will be sanctioned with a fine of one to four times the result of multiplying the penalty value of the respective species, in force on the date of the complaint, by the amount of hydrobiological resources subject to the infraction, reduced to tons of physical weight and with the confiscation of the hydrobiological species and the fishing gear and gear, or equipment and diving suit, as appropriate, with which the infraction was committed. (LGPA 2023).

According to the SERNAPESCA’s 2023 Report on Oversight Activities in Fishing and Aquaculture (SERNAPESCA 2024a), a total of close to 1,280 tons of hydrobiological species were seized due to non-compliance with regulations, which is an amount 54.3% lower than that seized in 2022, proving that sanctions are applied.

**References**

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

SERNAPESCA. (2024a). Plan de Fiscalización.  
[https://www.sernapesca.cl/app/uploads/2023/11/mfi\\_20-040-00-000\\_plan\\_de\\_fiscalizacion.pdf](https://www.sernapesca.cl/app/uploads/2023/11/mfi_20-040-00-000_plan_de_fiscalizacion.pdf)

<b>M2.3</b>	<b>M2.3 There is substantial evidence of widespread compliance in the fishery, and no substantial evidence of IUU fishing.</b>
	<i>In reaching a determination for M2.3, the assessor should consider if the following is in place:</i>
	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.

<b>Outcome</b>	<i>Pass</i>
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**Rationale**

SERNAPESCA’s Report on Oversight Activities in Fishing and Aquaculture complies with 4º B of the General Law of Fisheries and Aquaculture, which establishes that: “The Service must, in the month of March of each year, prepare a report on the inspection activities and actions carried out in the area of fishing and aquaculture, in the previous year. The account must also include the results of the inspection actions carried out and compliance with the administration and conservation measures of the previous year. The report must be published on its website.” (LGPA 2023). Thus, the level of compliance is documented and updated and publish each year.

Article 63 of the LGPA also states that industrial or artisanal shipowners must report to the Service their catches and landings by each of the ships or vessels used- Hydrobiological resources may only be landed at the points or ports of disembarkation that the Service authorizes. Article 64 A. states that there will be an automatic positioning system for fishing and research vessels fishing at sea that will be governed by the rules of this law and its complementary regulations. The information emanating from the automatic positioning system will be public and must be updated monthly and published on the electronic site of the National Fisheries Service and Aquaculture. (LGPA 2023). These articles states that Fishers must collaborate and comply with several activities that the law requires in order to demonstrate that their fishery is legal and maintain their permits.

**References**

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

SERNAPESCA. (2024). 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](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 are 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: Anchovy (*Engraulis ringes*)

#### A1 Data collection

<b>A1.1</b>	<b>A1.1 Landings data are collected such that the fishery-wide removals of this species are known.</b>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>The National Fisheries and Aquaculture Service (SERNAPESCA) is responsible for operating the official landing certification program. According to the General Law on Fishing and Aquaculture (LGPA), article 63E 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</p>	



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.” (LGPA 2023)

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 1) SERNAPESCA 2023.

Table 1. Total anchovy 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

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

SERNAPESCA (2023). Anuarios Estadísticos de Pesca y Acuicultura.

<https://www.sernapesca.cl/informacion-utilidad/anuarios-estadisticos-de-pesca-y-acuicultura/>

<b>A1.2</b>	<b>A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.</b>
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<b>Outcome</b>	<i>Pass</i>
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#### Rationale

The evaluation of the biological status of the anchovy and 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 is collected (SUBPESCA 2024):

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 2003-2023) cruises from the IFOP cruise program on hydroacoustic evaluation of anchovy recruitment between the Valparaíso and Los Lagos Regions.
5. Scientific and technical publications related to life cycle parameters (natural mortality and maturity).

#### References

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

## A2 Stock assessment

<b>A2.1</b>	<b>A2.1</b> 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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>The stock assessment is carried out by the IFOP at the end of each year and establishes an 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.</p> <p>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 1) (SUBPESCA 2016).</p> <p>The results generated by the IFOP from each stock assessment are presented to the CCT-PP of the SUBPESCA, who review the information and validate the advice.</p>	



Figure 1. Management cycle of the anchovy and 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>

<b>A2.2</b>	<b>A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.</b>
<b>Outcome</b>	<i>Pass</i>
<p><b>Rationale</b></p> <p>There is a biological frame of reference that establishes the proxy values (table 1) used by the CCT-PP to take management decision of the anchovy fishery according to the stock assessment results (SUBPESCA 2024).</p> <p>The CCT-PP establishes that based on the stock assessment provided by IFOP and the biological reference framework, the central-southern anchovy stock remains in a state of full exploitation for the biological year 2023/2024, with a high spawning biomass and increasing trend with 63% above the <math>SSB_{MSY}</math>, a fishing mortality equivalent to the <math>F_{MSY}</math> (<math>SSB/SSB_{MSY}=1.63</math> and <math>F/F_{MSY}=0.99</math>) and with a practically zero probability of overexploitation. (SUBPESCA 2024).</p> <p style="text-align: center;">Table 1. Biological frame of reference used by the CCT-PT for taking decision.</p>	

Resource	Proxy $F_{MSY}$	Proxy $SSB_{MSY}$	$SSB_{lim}$
Anchovy from Valparaiso to Los Lagos region	$F_{60\% SSB} = 0.47$	60% SSB or 55% $SSB_0 = 485,000$ t	27.5% $SSB_0 = 242,500$ t

$SSB_{MSY}$  = Spawning biomass at maximum sustainable yield  
 $SSBR$  = Spawning Biomass per Recruit  
 $SSB_0$  = Virginal spawning biomass spawning (estimated from stock-recruitment models: biomass of equilibrium, without fishery exploitation)  
 $SSB_{lim}$  = Limit reference point for Spawning Stock Biomass  
 $F_{MSY}$  = the fishing mortality that will maintain a stock at maximum sustainable yield

**References**

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

<b>A2.3</b>	<b>A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.</b>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>Based on the stock assessment, the CCT-PP advises a biologically acceptable quota (CBA) for the fishery. In 2024, the advice considered two scenarios: the potential approval of a new Remnants Law and without the consideration of this law; Therefore, advice was (SUBPESCA 2024):</p> <ol style="list-style-type: none"> <li>Without Law of Remnants: A total CBA that tends to the MSY equivalent to 281,334 tons, then, discounting the discard, a maximum CBA of 276,858 tons is determined, so the recommended CBA range is 221,486 to 276,858 tons.</li> <li>With Law of Remnants: A total CBA that tends to the MSY and incorporates discard and alternative remainder of the 30%, equivalent to 251,083 tons, so the capture range recommended biologically acceptable is 200,866 to 251,083 tons.</li> </ol> <p>The Remnants Law (Ley Num. 21.525) states that the remaining quotas not consumed during the year may be taken by artisanal fisheries. This will apply provided that the global catch quota has a minimum of 10% of uncaptured availability in the year and that the fishery has not been declared in conditions of depletion or collapse by the Scientific Committee. However, the transfer of remaining quotas may not exceed 30% of the global quota from the previous year. (DORC 2022). This law recalls the complexity of the year 2021 due the emergence and effects of Covid, and recognized a significant remainder corresponding to the year 2021 not extracted. Considering that biomass studies support the sustainability of the resource; the project creates an exception to the current quota, seeking to provide relief to fishing activity, essentially artisanal, allowing it to recover from the effects of the pandemic. (CDDC 2023).</p>	

This CBA will be updated when the PELACES cruise results are available.

**References**

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](https://www.subpesca.cl/portal/615/articles-117122_documento.pdf)

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

<b>A2.4</b>	<b>A2.4 The assessment is subject to internal or external peer review.</b>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>The assessment is carried out by IFOP, then it is presented to the CCT-PP, who peer review all the processes and updates in regular meeting through the year. According to the LGPA, the CCT in the Article 153 states that the CCT will be consulted and requested through the SUBPESCA, and they must determine, among others, the following matters (LGPA 2023):</p> <ul style="list-style-type: none"> <li>• The state of the fishery.</li> <li>• Determination of biological reference points.</li> <li>• Determination of the range within which the global catch quota can be set, which must maintain or bring the fishery to maximum sustainable yield. The breadth of the range will be such that the minimum value is equal to the maximum value minus 20%</li> </ul> <p>These peer reviews can be considered both internal and external as members of committees may also be outside the assessment process. In the last assessment report people involved in the review process represented several institutions: Universidad Arturo Prat, Universidad de Antofagasta, INPESCA, CIAM, IFOP, SSPA and independent participants. (SUBPESCA 2024).</p>	
<b>References</b>	
<p>LGPA. (2023). Ley General de Pesca y Acuicultura. <a href="https://www.subpesca.cl/portal/615/articles-88020_documento.pdf">https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</a></p> <p>SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. <a href="https://www.subpesca.cl/portal/616/articles-121371_documento.pdf">https://www.subpesca.cl/portal/616/articles-121371_documento.pdf</a></p>	

<b>A2.5</b>	<b>A2.5 The assessment is made publicly available.</b>
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<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>Stock assessment reports, advice on quotas, and regular session meetings of the CCT-PP, are publicly available in the SUBPESCA website (SUBPESCA 2024). Stock-recruitment and spawning period are closely monitored by IFOP and published in monthly bulletins and reports, which can be found in IFOP’s website (IFOP 2024).</p>	
<b>References</b>	
<p>SUBPESCA (2024). <a href="https://www.subpesca.cl/portal/616/w3-channel.html">https://www.subpesca.cl/portal/616/w3-channel.html</a></p> <p>IFOP (2024). <a href="https://www.ifop.cl/">https://www.ifop.cl/</a></p>	

## A3 Harvest strategy

<b>A3.1</b>	<b>A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.</b>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>Yes, in Chile the mechanism to limit the total fishing mortality of anchovy, is based on the General Law of Fisheries and Aquaculture (Law No. 18,892) and the Regulation of Fishing of Hydrobiological Resources. (LGPA 2023).</p> <p>Within this legal framework, the SERNAPESCA plays a crucial role in the management and regulation of fishing. The government, through SERNAPESCA, establishes catch quotas that limit the amount of anchovy that can be caught in a given period. These quotas are based on scientific assessments and stock data to ensure the sustainability of the resource.</p> <p>In addition, management measures are applied that include regulation of the fishing season, minimum catch size restrictions, and fishing effort limits to control total mortality. The regulations seek to balance the commercial exploitation of anchovy with the conservation of the resource and the marine ecosystem in general. These regulations are regularly adjusted in response to scientific studies and changes in the status of the resource to ensure that fishing is sustainable in the long term.</p>	
<b>References</b>	
<p>LGPA. (2023). Ley General de Pesca y Acuicultura. <a href="https://www.subpesca.cl/portal/615/articles-88020_documento.pdf">https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</a></p>	

<b>A3.2</b>	<b>A3.2</b> 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.
<b>Outcome</b>	<i>Pass</i>

**Rationale**

The last 3 years (2020- 2023) the anchovy landing in regions V-X haven't exceed the Biologically Acceptable Catch (CBA) which is set according to the Scientific Committee advice. (table 1) (SERNAPESCA 2021, 2022, 2023).

Table 1. 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
<b>2023</b>	2,710	1,568	58%	124,898	101,468	81%
<b>2022</b>	1,647	934	57%	172,261	137,375	80%
<b>2021</b>	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](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](https://www.sernapesca.cl/app/uploads/2023/11/ifpa_2022.pdf)

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[https://www.sernapesca.cl/app/uploads/2024/03/IFPA\\_2023\\_v20240522-1.pdf](https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf)

<b>A3.3</b>	<b>A3.3</b> 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).
<b>Outcome</b>	<i>Pass</i>

**Rationale**

The LGPA states that in Article 9 that in cases where a fishery is in a state of overexploitation or depletion according to biological reference points a recovery program must be established within the management plan, with prior agreement of the Management Committee. Article 39 indicates that a recovering fishery will be understood as one that is overexploited and subject to an extractive ban of at least three years, for the purpose of its recovery, and in which it is possible to set a global

catch quota. When the fishery is declared under a regime of fisheries in recovery, SUBPESCA will be authorized to award annually in public auction the right to capture each year the equivalent in tons of ten percent of the industrial fraction of the overall catch quota. (LGPA 2023).

As example, in 2021 the industrial anchovy 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 2024).

**References**

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

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

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

## A4 Stock status

<p><b>A4.1</b></p>	<p><b>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.</b></p>
<p><b>Outcome</b></p>	<p><i>Pass</i></p>
<p><b>Rationale</b></p> <p>The assessment of the anchovy stock covers the biological years from 1990/91 to 2023/24 and integrates the most recent information, such as estimates from the summer 2024 and autumn 2023 cruises (total biomass and age composition), landings, age composition and average weights at age of the fishing fleet. With the new information, the results indicate a total biomass level of 1.35 million tons and 797 thousand tons of spawning biomass in January 2024. These values correspond to about 0.9 of the virgin spawning biomass (<math>SSB_0</math>) and 1.6 of maximum yield spawning biomass (<math>SSB_{MSY}</math>) and maintain the trend of increase in population levels observed in recent years. Therefore, the central-southern anchovy for the biological year 2023/2024 have a high spawning biomass and increasing trend with 63% above the <math>SSB_{MSY}</math>, being in a fully exploited condition with a 0.6% probability of overexploitation and 0% probability of collapse. (figure 1). (SUBPESCA 2024).</p>	



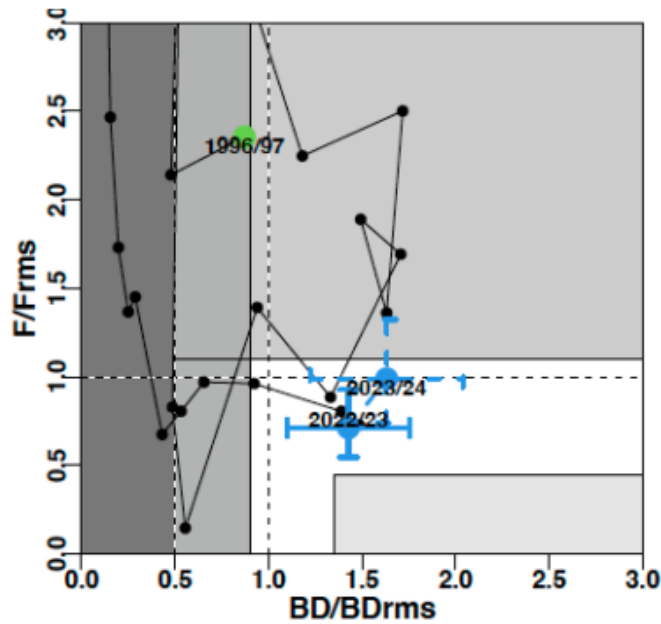


Figure 1. Diagram of phases of exploitation of spawning biomass with respect to fishing mortality from the March 2024 assessment update. The axes are standardized to the values that generate the MSY proxy. Blue cross corresponds to the confidence intervals of the SSB/SSD<sub>MSY</sub> and F/F<sub>MSY</sub> ratio. The year with a solid cross corresponds to Complete Status, the year with a dashed cross corresponds to Preliminary Status. (SUBPESCA 2024).

**References**

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

**Species Name: Araucanian herring (*Strangomera bentincki*)**

**A1 Data collection**

<b>A1.1</b>	<b>A1.1 Landings data are collected such that the fishery-wide removals of this species are known.</b>
<b>Outcome</b>	<i>Pass</i>

**Rationale**

The National Fisheries and Aquaculture Service (SERNAPESCA) is responsible for operating the official landing certification program. According to the General Law on Fishing and Aquaculture (LGPA), article 63E 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.” (LGPA 2023)

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 (table 1) SERNAPESCA 2023.

Table 1. 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**

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

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

<b>A1.2</b>	<b>A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.</b>
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<b>Outcome</b>	<i>Pass</i>
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**Rationale**

The evaluation of the biological status of the anchovy and 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 is collected (SUBPESCA 2024):

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 2003-2023) cruises from the IFOP cruise program on hydroacoustic evaluation of anchovy recruitment between the Valparaíso and Los Lagos Regions.
5. Scientific and technical publications related to life cycle parameters (natural mortality and maturity).

**References**

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

## A2 Stock assessment

<b>A2.1</b>	<b>A2.1</b> 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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>The stock assessment is carried out by the IFOP at the end of each year and establishes an 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.</p> <p>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 1) (SUBPESCA 2016).</p> <p>The results generated by the IFOP from each stock assessment are presented to the CCT-PP of the SUBPESCA, who review the information and validate the advice.</p>	

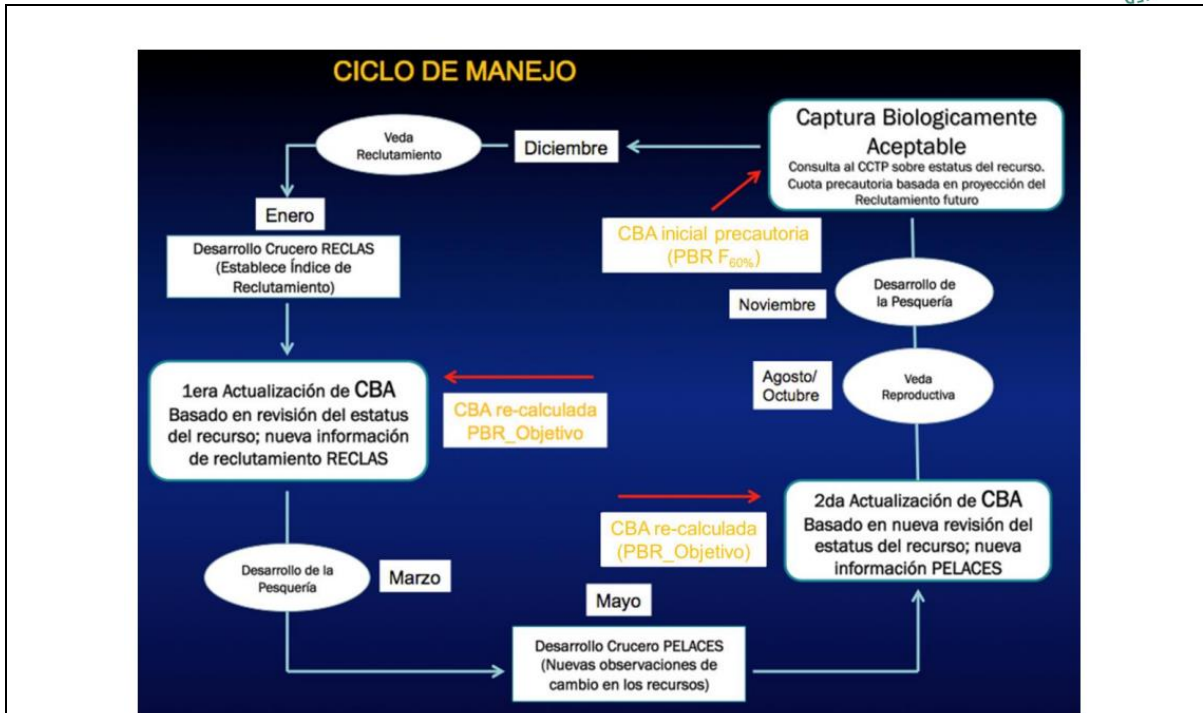


Figure 1. Management cycle of the anchovy and araucanian herring in in the Central-Southern region of Chile (SUBPESCA 2016).

**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>

<p><b>A2.2</b></p>	<p><b>A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.</b></p>
<p><b>Outcome</b></p>	<p><i>Pass</i></p>
<p><b>Rationale</b></p> <p>There is a biological frame of reference that establishes the proxy values (table 1) used by the CCT-PP to take management decision of the Araucanian herring fishery according to the stock assessment results (SUBPESCA 2024).</p> <p>The CCT-PP establishes that based on the stock assessment provided by IFOP and the biological reference framework, the central-southern Araucanian herring stock transitioned from a state of full exploitation with overfishing in 2022/23 to a condition of overexploitation in 2023/24, reaching a spawning biomass of 23% under the <math>SSB_{MSY}</math> but above the <math>SSB_{lim}</math> and a mortality of fishing in the <math>F_{MSY}</math> (<math>SSB/SSB_{MSY}=0.77</math> and <math>F/F_{MSY}=1.0</math>), with a probability <math>p=0.78</math> of overexploitation and <math>p=0.03</math> of depleted/collapsed (SUBPESCA 2024).</p> <p style="text-align: center;">Table 1. Biological frame of reference used by the CCT-PT for taking decision.</p>	

Resource	Proxy $F_{MSY}$	Proxy $SSB_{MSY}$	$SSB_{lim}$
Araucanian herring from Valparaiso to Los Lagos region	$F_{60\% SSBR} = 0.30$	60% SSBR or 55% $SSB_0 = 795,300$ t	27.5% $SSB_0 = 397,650$ t

$SSB_{MSY}$  = Spawning biomass at maximum sustainable yield  
 SSBR = Spawning Biomass per Recruit  
 $SSB_0$  = Virginal spawning biomass spawning (estimated from stock-recruitment models: biomass of equilibrium, without fishery exploitation)  
 $SSB_{lim}$  = Limit reference point for Spawning Stock Biomass  
 $F_{MSY}$  = the fishing mortality that will maintain a stock at maximum sustainable yield

**References**

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

<b>A2.3</b>	<b>A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.</b>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>Based on the stock assessment, the CCT-PP advises a biologically acceptable quota (CBA) for the fishery. In 2024, the advice considered two scenarios: the potential approval of a new Remnants Law and without the consideration of this law; Therefore, advice was (SUBPESCA 2024):</p> <ol style="list-style-type: none"> <li>1- Without Law of Remnants: recommended CBA range is 148,236 to 185,295 tons.</li> <li>2- With Law of Remnants: recommended CBA is 120,165 to 150,207 tons.</li> </ol> <p>Notwithstanding the above, and understanding the administrative difficulties that reducing a catch quota already assigned means for the SUBPESCA (SUBPESCA 2024), it is recommended to maintain the status quo of the CBA of this resource, as established in CCT-PP Minute No. 6 of 2023 (SUBPESCA 2023), that is:</p> <ol style="list-style-type: none"> <li>1- Without Law of Remnants: recommended CBA range is 237,330 to 296,663 tons.</li> <li>2- With Law of Remnants: recommended CBA is 200,274 to 250,343 tons.</li> </ol> <p>The status and ranks of CBA were adopted by consensus by the Committee members (SUBPESCA 2024).</p> <p>The Remnants Law (Ley Num. 21.525) states that the remaining quotas not consumed during the year may be taken by artisanal fisheries. This will apply provided that the global catch quota has a minimum of 10% of uncaptured availability in the year and that the fishery has not been declared in conditions of depletion or collapse by the Scientific Committee. However, the transfer of remaining quotas may not exceed 30% of the global quota from the previous year. (DORC 2022).</p>	

This law recalls the complexity of the year 2021 due the emergence and effects of Covid, and recognized a significant remainder corresponding to the year 2021 not extracted. Considering that biomass studies support the sustainability of the resource; the project creates an exception to the current quota, seeking to provide relief to fishing activity, essentially artisanal, allowing it to recover from the effects of the pandemic. (CDDC 2023).

**References**

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](https://www.subpesca.cl/portal/615/articles-117122_documento.pdf)

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

SUBPESCA (2023). Informe técnico No. 5, sesión No.6 – 2023. Comité Científico de Pequeños Pelagicos. [https://www.subpesca.cl/portal/616/articles-119804\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-119804_documento.pdf)

<b>A2.4</b>	<b>A2.4 The assessment is subject to internal or external peer review.</b>
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<b>Outcome</b>	<i>Pass</i>
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**Rationale**

The assessment is carried out by IFOP, then it is presented to the CCT-PP, who peer review all the processes and updates in regular meeting through the year. According to the LGPA, the CCT in the Article 153 states that the CCT will be consulted and requested through the SUBPESCA, and they must determine, among others, the following matters (LGPA 2023):

- The state of the fishery.
- Determination of biological reference points.
- Determination of the range within which the global catch quota can be set, which must maintain or bring the fishery to maximum sustainable yield. The breadth of the range will be such that the minimum value is equal to the maximum value minus 20%

These peer reviews can be considered both internal and external as members of committees may also be outside the assessment process. In the last assessment report people involved in the review process represented several institutions: Universidad Arturo Prat, Universidad de Antofagasta, INPESCA, CIAM, IFOP, SSPA and independent participants. (SUBPESCA 2024).

**References**

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

<b>A2.5</b>	<b>A2.5 The assessment is made publicly available.</b>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>Stock assessment reports, advice on quotas, and regular session meetings of the CCT-PP, are publicly available in the SUBPESCA website (1). Stock-recruitment and spawning period are closely monitored by IFOP and published in monthly bulletins and reports, which can be found in IFOP’s website (2).</p>	
<b>References</b>	
<p>1- <a href="https://www.subpesca.cl/portal/616/w3-channel.html">https://www.subpesca.cl/portal/616/w3-channel.html</a>                  2- <a href="https://www.ifop.cl/">https://www.ifop.cl/</a></p>	

### A3 Harvest strategy

<b>A3.1</b>	<b>A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.</b>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>Yes, in Chile the mechanism to limit the total fishing mortality of Araucanian herring, is based on the General Law of Fisheries and Aquaculture (Law No. 18,892) and the Regulation of Fishing of Hydrobiological Resources. (LGPA 2023).</p> <p>Within this legal framework, the SERNAPESCA plays a crucial role in the management and regulation of fishing. The government, through SERNAPESCA, establishes catch quotas that limit the amount of Araucanian Herring that can be caught in a given period. These quotas are based on scientific assessments and stock data to ensure the sustainability of the resource.</p> <p>In addition, management measures are applied that include regulation of the fishing season, minimum catch size restrictions, and fishing effort limits to control total mortality. The regulations seek to balance the commercial exploitation of Araucanian herring with the conservation of the resource and the marine ecosystem in general. These regulations are regularly adjusted in response to scientific studies and changes in the status of the resource to ensure that fishing is</p>	

sustainable in the long term.

**References**

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articulos-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articulos-88020_documento.pdf)

<b>A3.2</b>	<b>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.</b>
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<b>Outcome</b>	<i>Pass</i>
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**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 Biologically Acceptable Catch (CBA). (table 1) (SERNAPESCA 2021, 2022, 2023).

Table 1. Araucanian herring Biologically Acceptable Catch (CBA), landing and % of quota used in the Central-Southern region in Chile fishery.

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](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](https://www.sernapesca.cl/app/uploads/2023/11/ifpa_2022.pdf)

SERNAPESCA. (2023). 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](https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf)

<b>A3.3</b>	<b>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).</b>
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<b>Outcome</b>	<i>Pass</i>
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<b>Rationale</b>	<p>The LGPA states in Article 9 that in cases where a fishery is in a state of overexploitation or depletion according to biological reference points a recovery program must be established within the management plan, with prior agreement of the Management Committee. Article 39 indicates that a recovering fishery will be understood as one that is overexploited and subject to an extractive ban of at least three years, for the purpose of its recovery, and in which it is possible to set a global catch quota. When the fishery is declared under a regime of fisheries in recovery, SUBPESCA will be authorized to award annually in public auction the right to capture the equivalent in tons of ten percent of the industrial fraction of the overall catch quota each year. (LGPA 2023).</p> <p>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 2024).</p>
<b>References</b>	<p>IFOP. (2021). Informe Anual de Evaluación del Estado de los Recursos Pesqueros. Instituto de Fomento Pesquero. <a href="https://www.ifop.cl/wp-content/uploads/RepositorioIfop/InformeFinal/2021/P-581168.pdf">https://www.ifop.cl/wp-content/uploads/RepositorioIfop/InformeFinal/2021/P-581168.pdf</a></p> <p>LGPA. (2023). Ley General de Pesca y Acuicultura. <a href="https://www.subpesca.cl/portal/615/articles-88020_documento.pdf">https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</a></p> <p>SERNAPESCA (2024). Cierre de cuotas. <a href="https://www.sernapesca.cl/informacion-utilidad/cierre-de-cuotas/">https://www.sernapesca.cl/informacion-utilidad/cierre-de-cuotas/</a></p>

## A4 Stock status

<b>A4.1</b>	<p><b>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.</b></p>
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	<p>The stock assessment indicates that the central-southern Araucanian herring stock transitioned from a state of full exploitation with overfishing in 2022/23 to a condition of overexploitation in 2023/24, reaching a spawning biomass of 23% under the <math>SSB_{MSY}</math> but above the <math>SSB_{lim}</math> and mortality of fishing in the <math>F_{MSY}</math> (<math>SSB/SSB_{MSY}=0.77</math> and <math>F/F_{MSY}=1.0</math>), with a probability <math>p=0.78</math> of overexploitation and <math>p=0.03</math> of depleted/collapsed (figure 1). (SUBPESCA 2024).</p>

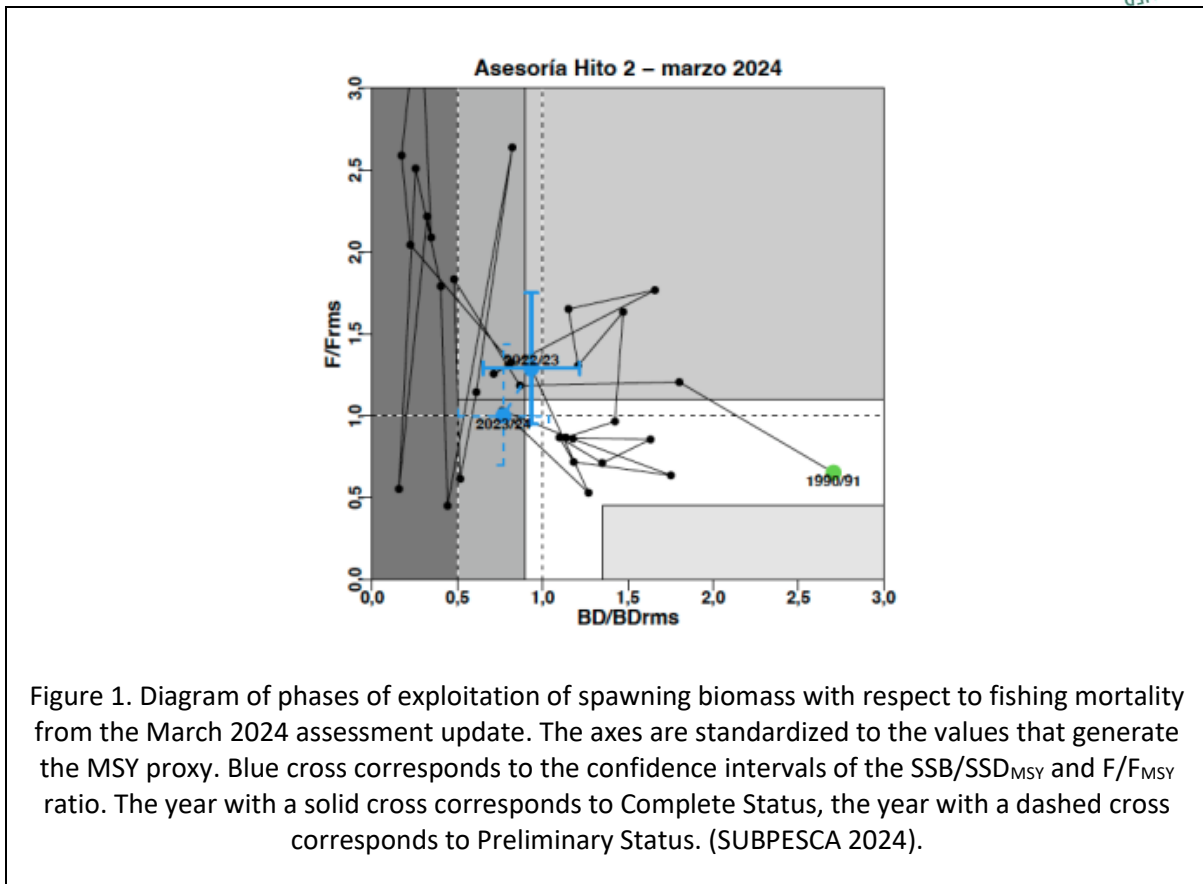


Figure 1. Diagram of phases of exploitation of spawning biomass with respect to fishing mortality from the March 2024 assessment update. The axes are standardized to the values that generate the MSY proxy. Blue cross corresponds to the confidence intervals of the  $SSB/SSD_{MSY}$  and  $F/F_{MSY}$  ratio. The year with a solid cross corresponds to Complete Status, the year with a dashed cross corresponds to Preliminary Status. (SUBPESCA 2024).

**References**

SUBPESCA. (2024). Comité científico técnico de pequeños pelágicos (CCT-PP). Informa técnico No 1/2024. [https://www.subpesca.cl/portal/616/articles-121371\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-121371_documento.pdf)

## Category B species

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

- 2.2. 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.
- 2.3. The risk matrix in Table B(b) shall be used when assessing a Category B species when no reference points are available.

<b>B1</b>	<b>A3.3</b> 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).
<b>Table used B(a) or B(b)</b>	NA
<b>Outcome</b>	Choose an item.

Rationale
References

## Category C species

- 2.4. All clauses must be met for a species to pass the Category C assessment.
- 2.4.1. 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.

<b>C1.1</b>	<b>C1.1</b> 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.
<b>Outcome</b>	Choose an item. <i>NA</i>
<b>Rationale</b>	
<b>References</b>	

<b>C1.2</b>	<b>C1.2</b> 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.
<b>Outcome</b>	Choose an item.
<b>Rationale</b>	
<b>References</b>	

## Category D species

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

- 2.5. The Productivity-Susceptibility Analysis (PSA) in Table D(a) shall be used when assessing Category D species.
- 2.6. Table D(b) shall be used to calculate the overall PSA risk rating for the Category D species.
- 2.7. 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	Starry butterfish ( <i>Stromateus stellatus</i> )	
Productivity attributes	Value	Score
Average age at maturity	0.8 years	1
Average maximum age	3 years	1
Fecundity	8,340 – 36,210	2
Average maximum size	25.1 cm	1
Average size at maturity	15.8 cm	1
Reproductive strategy	Broadcast spawner	1
Mean Trophic Level (MTL)	3.5	3
Density dependence (to be used when scoring invertebrate species only)	NA	NA
Susceptibility attributes		
<b>Areal overlap (availability):</b> Overlap of the fishing effort with a species concentration of the stock	>30% overlap	3
<b>Encounterability:</b> 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	High overlap	3
<b>Selectivity of gear type:</b> Potential of the gear to retain species	Individuals < size at maturity are frequently caught	3
<b>Post-capture mortality (PCM):</b> The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Retained	3
<b>Average productivity score</b>		1.42
<b>Average susceptibility score</b>		3
<b>PSA risk rating (from Table D(b))</b>		Pass
<b>Compliance rating</b>		Pass

Species name	Mote sculpin ( <i>Normanichthys crockeri</i> )	
Productivity attributes	Value	Score
Average age at maturity	Unknown	-
Average maximum age	4 years <sup>2</sup>	1
Fecundity	Unknown	-
Average maximum size	11 cm	1
Average size at maturity	7.6 cm	1
Reproductive strategy	Broadcast spawner	1
Mean Trophic Level (MTL)	2.8	2
Density dependence (to be used when scoring invertebrate species only)	NA	NA
Susceptibility attributes		
<b>Areal overlap (availability):</b> Overlap of the fishing effort with a species concentration of the stock	>30% overlap	3
<b>Encounterability:</b> 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	High overlap	3
<b>Selectivity of gear type:</b> Potential of the gear to retain species	Individuals < size at maturity are frequently caught	3
<b>Post-capture mortality (PCM):</b> The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Retained	3
<b>Average productivity score</b>		1.2
<b>Average susceptibility score</b>		3
<b>PSA risk rating (from Table D(b))</b>		Pass
<b>Compliance rating</b>		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).

<b>D1</b>	<b>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.</b>
<b>Outcome</b>	Choose an item. NA
<b>Rationale</b>	
<b>References</b>	

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

## 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.

- 3.1. All ecosystem criteria must be met (pass) for a fishery to pass the Ecosystem Requirements.
  - 3.1.1. 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)

<b>E1.1</b>	<b>E1.1 Information on interactions between the fishery and ETP species is collected.</b>
	<i>In reaching a determination for E1.1, the assessor should consider if the following is in place:</i>
	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.

<b>Outcome</b>	<i>Pass</i>
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**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. 20625 and its regulations. IFOP; through the Research Program on Discard and Capture Bycatch uses the following method to collect ETP bycatch information (SUBPESCA 2024):

- **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 2024).

Information is analyzed by IFOP and results are included in their annual final report of the Scientific Observer Program (IFOP 2022).

**References**

IFOP (2022). INFORME FINAL. Convenio de Desempeño 2021. Programa de observadores científicos: Programa de investigación y monitoreo del descarte y de la captura de pesca incidental en pesquerías pelágicas, año 2021-2022. [https://www.ifop.cl/wp-content/uploads/RepositorioIfop/InformeFinal/2022/P-581180\\_mejorado.pdf](https://www.ifop.cl/wp-content/uploads/RepositorioIfop/InformeFinal/2022/P-581180_mejorado.pdf)

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. [https://www.subpesca.cl/portal/618/articles-121344\\_recurso\\_1.pdf](https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf)

<b>E1.2</b>	<b>E1.2 The fishery has no significant negative impact on ETP species.</b>
	<i>In reaching a determination for E1.2, the assessor should consider if the following is in place:</i>
	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.

<b>Outcome</b>	<i>Pass</i>
<p><b>Rationale</b></p> <p>The records of incidental capture and mortality of birds, sea turtles and marine mammals that interacted with the fishing activities of the industrial and artisanal purse seine fleets of anchovy and araucanian herring between the Valparaíso Region and the Los Lagos Region, during the period January 2015 - December 2021, do not report any ETP (Extinct (E) and extinct in the wild (EW), Critically Endangered (CR) or Endangered (EN) (but some Near Threatened (NT) and Vulnerable (VU)), or any species included in the CITES appendices) species interaction. (IFOP 2022)</p> <p>The composition of the industrial purse seine fleet bycatch was dominated by procellariiform birds (46.9%), followed by marine mammals (36.8%) and coastal seabirds (16.3%). The bycatch of marine mammals was composed exclusively of the common sea lion species. (Table 1). Meanwhile, artisanal fleet composition bycatch was dominated by marine mammals (53.6%), procellariiform birds (37.7%) and coastal seabirds (8.7%) (table 2). (IFOP 2022)</p> <p style="text-align: center;">Table 1. Composition of the industrial purse seine fleet bycatch 2015 -2021. (IFOP 2022)</p>	



Nombre común	Nombre científico	Captura	Muertos	Mort (%)	TCI	CV <sub>TCI</sub>	TMI	CV <sub>TMI</sub>
Lobo marino común	<i>Otaria flavescens</i>	1.679	25	1,5	5,2	199	0,08	753
Fardela blanca	<i>Ardenna creatopus</i>	1.578	943	59,8	4,9	484	2,9	768
Pelicano peruano	<i>Pelecanus thagus</i>	407	62	15,2	1,3	418	0,2	945
Fardela negra	<i>Ardenna grisea</i>	399	151	37,8	1,2	603	0,5	830
Gaviota dominicana	<i>Larus dominicanus</i>	185	2	1,1	0,6	529	0,006	1.271
Fardela s/i	<i>Ardenna sp.</i>	132	132	100	0,4	1.096	0,4	1.096
Gaviota cahuil	<i>Larus maculipennis</i>	80	0	0	0,2	990	0	-
Pingüino de Humboldt	<i>Spheniscus humboldti</i>	43	29	67,4	0,1	536	0,09	699
Pingüino sin identificar	<i>Spheniscus spp.</i>	27	23	85,2	0,08	664	0,07	716
Golondrina s/i	Hydrobatidae	11	11	100	0,03	1.508	0,03	1.508
Albatros de ceja negra	<i>Thalassarche melanophris</i>	7	7	100	0,02	848	0,02	848
Petrel moteado	<i>Daption capense</i>	4	4	100	0,01	1.800	0,01	1.800
Cormorán s/i	<i>Phalacrocorax spp.</i>	2	2	100	0,006	1.800	0,006	1.800
Petrel s/i	Procellariidae	2	2	100	0,006	1.800	0,006	1.800
Petrel gigante s/i	<i>Macronectes sp.</i>	2	2	100	0,006	1.800	0,006	1.800
Fardela gris	<i>Procellaria cinerea</i>	2	2	100	0,006	1.271	0,006	1.271
Petrel gigante antártico	<i>Macronectes giganteus</i>	2	0	0	0,006	1.271	0	-
Albatros chico s/i	<i>Thalassarche spp.</i>	1	1	100	0,003	1.800	0,003	1.800
Petrel gigante subantártico	<i>Macronectes halli</i>	1	1	100	0,003	1.800	0,003	1.800
Gaviotín sudamericano	<i>Sterna hirundinacea</i>	1	1	100	0,003	1.800	0,003	1.800
Pingüino de Magallanes	<i>Spheniscus magellanicus</i>	1	0	0	0,003	1.800	0	-

s/i: Sin identificar

Mort (%) = Mortalidad = Número de animales muertos/Número de animales capturados

Captura Incidental Promedio (CIP) = Número de animales capturados/Número de lances observados

Coefficiente de Variación Captura Incidental Promedio (CVCIP)

Mortalidad Incidental Promedio (MIP) = Número de animales muertos/Número de lances observados

Coefficiente de Variación Mortalidad Incidental Promedio (CVMIP)

Table 2. Composition of the artisanal purse seine bycatch 2015 -2021. (IFOP 2022)

Nombre común	Nombre científico	Captura	Muertos	Mort (%)	TCI	CV <sub>TCI</sub>	TMI	CV <sub>TMI</sub>
Lobo marino común	<i>Otaria flavescens</i>	3.760	5	0,1	3,8	234	0,005	1.403
Fardela blanca	<i>Ardena creatopus</i>	1.343	893	66,5	1,4	765	0,9	836
Fardela negra	<i>Ardena grisea</i>	1.323	1.029	77,8	1,3	1.047	1,04	1.124
Pelicano peruano	<i>Pelecanus thagus</i>	368	20	5,4	0,4	704	0,02	964
Gaviota dominicana	<i>Larus dominicanus</i>	177	69	39	0,2	715	0,07	1.131
Fardela blanca de más a tierra	<i>Pterodroma defilippiana</i>	38	38	100	0,04	2.330	0,04	2.330
Pingüino de Humboldt	<i>Spheniscus humboldti</i>	22	0	0	0,02	1.468	0	-
Piquero	<i>Sula variegata</i>	10	10	100	0,01	2.266	0,01	2.266
Gaviota de Franklin	<i>Larus pipixcan</i>	9	0	0	0,009	2.542	0	-
Gaviota garuma	<i>Leucophaenus modestus</i>	8	0	0	0,008	3.143	0	-
Fardela blanca de Juan Fernández	<i>Pterodroma externa</i>	7	7	100	0,007	2.731	0,007	2.731
Pingüino de Magallanes	<i>Spheniscus magellanicus</i>	6	3	50	0,006	1.479	0,003	2.342
Orca	<i>Orcinus orca</i>	6	0	0	0,006	3.143	0	-
Pato yeco	<i>Phalacrocorax brasilianus</i>	4	1	25	0,004	1.569	0,001	3.143
Gaviota cáhuil	<i>Larus maculipennis</i>	2	2	100	0,002	3.143	0,002	3.143
Golondrina de mar	<i>Oceanites oceanicus</i>	1	0	0	0,001	3.143	0	-
Gaviotín monja	<i>Larosterna inca</i>	1	0	0	0,001	3.143	0	-
Pingüino sin identificar	<i>Spheniscus sp.</i>	1	0	0	0,001	3.143	0	-

Mort (%) = Mortalidad = Número de animales muertos/Número de animales capturados

Captura Incidental Promedio (CIP) = Número de animales capturados/Número de lances observados

Coefficiente de Variación Captura Incidental Promedio (CVCIP)

Mortalidad Incidental Promedio (MIP) = Número de animales muertos/Número de lances observados

Coefficiente de Variación Mortalidad Incidental Promedio (CVMIP)

## References

IFOP (2022). INFORME FINAL. Convenio de Desempeño 2021. Programa de observadores científicos: Programa de investigación y monitoreo del descarte y de la captura de pesca incidental en pesquerías pelágicas, año 2021-2022. [https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2022/P-581180\\_mejorado.pdf](https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2022/P-581180_mejorado.pdf)

<b>E1.3</b>	<b>E1.3 There is an ETP management strategy in place for the fishery.</b>
	<i>In reaching a determination for E1.3, the assessor should consider if the following is in place:</i>
	<p>E1.3.1 There are measures applied to the fishery which are designed to manage the impacts of the fishery on ETP species.</p> <p>E1.3.2 The measures are considered likely to achieve the objectives of regional, national and international legislation relating to ETP species.</p>
<b>Outcome</b>	<i>Pass</i>
<p><b>Rationale</b></p> <p>To manage the ETP interaction with the fishery, there is a plan for reducing discards and incidental catches for the industrial and artisanal fishery of anchovy and Araucanian herring in Valparaíso-Los Lagos regions. R.Ex 2463/2017. (SUBPESCA 2017)</p> <p>There are also specific regulations to reduce the capture and incidental mortality of seabirds during fishing operations, through Exempt Resolutions No. 2110/2014, 2941/2019, and 2569/2021, the mandatory use of deterrent devices such as bird scaring lines was established, together with the application of codes of good fishing practices such as night setting, management of discards to avoid attracting birds, among others, covering industrial and artisanal longline fleets, and industrial trawler fleets. (SUBPESCA 2024). 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.</p> <p>In the case of incidental catches of marine mammals, in 2021 various measures were enacted for industrial purse seine fisheries, artisanal traps, industrial trawling, and artisanal gillnets - through exempt resolutions No. 2667 of 2021, No. 2827 of 2021, No. 3120 of 2021 and No. 3122 of 2021 - in which the use of devices together with the application of fishing maneuvers for the release of specimens into the water, on-board management protocols, codes of good practice and reporting of incidental catches in logbooks, among others, were established. (SUBPESCA 2024)</p> <p>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 (LGPA 2023):</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Article 4 letter c), is mandatory to carry on boats and ships devices or utensils to avoid or minimize by catch.</li> <li>• Article 4 letter d), is mandatory to carry on boats to release specimens caught incidentally by fishing gear.</li> </ul>	
<p><b>References</b></p> <p>LGPA. (2023). Ley General de Pesca y Acuicultura. <a href="https://www.subpesca.cl/portal/615/articles-88020_documento.pdf">https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</a></p>	

SUBPESCA (2017). Plan de reducción del descarte y la captura de pesca incidental para la pesquería industrial y artesanal de sardina común y anchoveta en regiones V-X.  
[https://www.subpesca.cl/portal/615/articles-97874\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-97874_documento.pdf)

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023.  
[https://www.subpesca.cl/portal/618/articles-121344\\_recurso\\_1.pdf](https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf)

## E2 Impact on the habitat

<b>E2.1</b>	<b>E2.1 Information on interactions between the fishery and marine habitats is collected.</b>
	<i>In reaching a determination for E2.1, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>The anchovy and Araucanian herring fishery use 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 very little effect. (MSC 2024, FAO 2024, Sustain 2024, SUBPESCA 2003).</p> <p>Taking into account the lack of interaction of the purse seine with any kind of habitat, fishery using this gear does not pose a risk of serious or irreversible harm to any habitat type.</p>	
<b>References</b>	
FAO. (2024). Fishing gear type. Purse seines. <a href="https://www.fao.org/fishery/en/geartype/249/en">https://www.fao.org/fishery/en/geartype/249/en</a>	
MSC. (2024). Purse seine. <a href="https://www.msc.org/what-we-are-doing/our-approach/fishing-">https://www.msc.org/what-we-are-doing/our-approach/fishing-</a>	

methods-and-gear-types/purse-seine

SUBPESCA. (2003). Cerco con jareta. [https://www.subpesca.cl/portal/616/articles-9188\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-9188_documento.pdf)

Sustain. (2024). Purse seines. [https://www.sustainweb.org/goodcatch/purse\\_seines/](https://www.sustainweb.org/goodcatch/purse_seines/)

<b>E2.2</b>	<b>E2.2 The fishery has no significant impact on marine habitats.</b>
	<i>In reaching a determination for E2.2, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>

**Rationale**

Purse seine does not interact with any physical habitats (MSC 2024, FAO 2024, Sustain 2024, SUBPESCA 2003); therefore, no evidence was found during the assessment about any kind of negative impact on physical habitats by the anchovy and Araucanian herring fishery activity.

**References**

FAO. (2024). Fishing gear type. Purse seines. <https://www.fao.org/fishery/en/geartype/249/en>

MSC. (2024). Purse seine. <https://www.msc.org/what-we-are-doing/our-approach/fishing-methods-and-gear-types/purse-seine>

SUBPESCA. (2003). Cerco con jareta. [https://www.subpesca.cl/portal/616/articles-9188\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-9188_documento.pdf)

Sustain. (2024). Purse seines. [https://www.sustainweb.org/goodcatch/purse\\_seines/](https://www.sustainweb.org/goodcatch/purse_seines/)

<b>E2.3</b>	<b>E2.3 There is a habitat management strategy in place for the fishery.</b>
	<i>In reaching a determination for E2.3, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>

**Rationale**

Purse seine does not interact with any physical habitats (MSC 2024, FAO 2024, Sustain 2024,

SUBPESCA 2003); hence 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.

**References**

FAO. (2024). Fishing gear type. Purse seines. <https://www.fao.org/fishery/en/geartype/249/en>

MSC. (2024). Purse seine. <https://www.msc.org/what-we-are-doing/our-approach/fishing-methods-and-gear-types/purse-seine>

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Sustain. (2024). Purse seines. [https://www.sustainweb.org/goodcatch/purse\\_seines/](https://www.sustainweb.org/goodcatch/purse_seines/)

## E3 Impact on the ecosystem

<b>E3.1</b>	<b>E3.1 Information on the potential impacts of the fishery on marine ecosystems is collected.</b>
	<i>In reaching a determination for E3.1, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>The anchovy and Araucanian herring management plan recognizes that this species are essential in food webs, being key in the transfer of energy from plankton to large predators, since they are the main source of food for birds, marine mammals and larger wild fish that provide other fishing opportunities for human consumption. In Chile, studies have shown that anchovy and Araucanian herring are species that represent an important component in the diet of sea lions, sharks and other species of economic importance such as horse mackerel and hake (SUBPESCA 2016).</p> <p>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).</p>	

The management of this fishery has a permanent annual research program by law (Article 91 LGPA) which is executed by the IFOP. This program is made up of research and monitoring projects for this fishery in regions V to X, such as (SUBPESCA 2016):

- 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

Pikitch, E., Boersma, P. D., Boyd, I. L., Conover, D. O., Cury, P., Essington, T., ... & Steneck, R. S. (2012). Little fish, big impact: managing a crucial link in ocean food webs. Lenfest Ocean Program, Washington, DC, 108.

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>

<b>E3.2</b>	<b>E3.2 There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.</b>
	<i>In reaching a determination for E3.2, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
<p>No evidence was found that the anchovy and Araucanian herring fishery is impacting negatively the marine ecosystem. The approval of the previous sections in this assessment demonstrates that this fishery is regulated in different aspects, which allows minimizing the negative impacts that anchovy and Araucanian herring extraction could have on the ecosystem.</p> <p>The historical status of the fishery indicates that the anchovy after being depleted for several years it recovered, and since 2020 is consider under full exploitation. The Araucanian herring has been a fishery under full exploitation since 2014, with exception of 2021. (figure 1) (SUBPESCA 2024). 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</p>	

balance of the marine ecosystem (SUBPESCA 2016, LGPA 2023). Then, the extraction of the resource is not affecting the ecosystem.

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
Pelagicos	Jurel	AYP-LAGOS	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green
	Anchoveta	AYP-ANTOF	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green
	Anchoveta	ATCMA-COQ	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green
	Anchoveta	VALPO-LAGOS	Red	Red	Red	Red	Red	Yellow	Green	Green	Green	Green
	Sardina común	VALPO-LAGOS	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green
	Sardina española	AYP-ANTOF	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
	Sardina española	ATCMA-COQ	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
	Sardina austral	LAGOS	Green	Green	Green	Green	Yellow	Yellow	Green	Green	Red	Yellow
	Sardina austral	AYSEN	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Figure 1. Status of the 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. In the purple square the anchovy and Araucanian herring fishery status. (SUBPESCA 2024).

#### References

LGPA. (2023). Ley General de Pesca y Acuicultura. [https://www.subpesca.cl/portal/615/articles-88020\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-88020_documento.pdf)

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. [https://www.subpesca.cl/portal/618/articles-121344\\_recurso\\_1.pdf](https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf)

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>

<b>E3.3</b>	<b>E3.3 There is an ecosystem management strategy in place for the fishery.</b>
	<i>In reaching a determination for E3.3, the assessor should consider if the following is in place:</i>
	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.
<b>Outcome</b>	<i>Pass</i>
<b>Rationale</b>	
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 2024).

Also, to ensure the sustainability of the anchovy and Araucanian herring, the stocks are 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. Likewise, each species has a reference period of ban, at the beginning and end of which the condition of the biological indicator is evaluated to initiate the respective ban, and a fixed period included within the previous one, during which an effective ban is developed for all events. (SUBPESCA 2016)

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

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. [https://www.subpesca.cl/portal/618/articles-121344\\_recurso\\_1.pdf](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*



# Fishery Assessment Peer Review Report

Document TEM-013 – Version 1.1

Issued August 2024 – Effective August 2024

*Chile - Anchovy (Engraulis ringens) and Araucanian herring (Strangomera bentincki) - FAO 87, Chilean EEZ Regions V-X*

WF12

## Assessment and determination summary

<b>Fishery name</b>	Chile - Anchovy ( <i>Engraulis ringens</i> ) and Araucanian herring ( <i>Strangomera bentincki</i> ) - FAO 87, Chilean EEZ Regions V-X
<b>MarinTrust report code</b>	WF12
<b>Type 1 species (common name, Latin name)</b>	Anchovy ( <i>Engraulis ringens</i> ), Araucanian herring ( <i>Strangomera bentincki</i> )
<b>Fishery location</b>	Chilean EEZ Regions V-X
<b>Gear type(s)</b>	Purse seine
<b>Management authority (country/state)</b>	Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA)
<b>Certification Body recommendation</b>	Approved
<b>FAPRG reviewer recommendation</b>	Agree with CB determination

## Summary of peer review outcomes

<p><b>Summary</b>  <i>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.</i></p> <p>The assessor has produced a clear, well-referenced report, offering thorough justification for all scoring decisions. The peer reviewer concurs with all the assessment outcomes and scores. Only minor comments provided.          Just a couple of comments for section M(not sure where to include comments for that section).          M1.3 Isn't INPESCA a private institute? I was under the impression that it was IFOP responsible for providing "official" scientific advice to SUBPESCA for management decisions. Could you clarify this for me?          M1.4 Also, I think I may have asked this before in a previous review, but I don't remember the response. Regarding the "coverage indicator" you mentioned—9.99 inspection activities for every 10 artisanal landings—how is this figure calculated? I haven't been able to find any information about it in the documents provided.</p> <p><b>General comments on the draft report provided to the peer reviewer</b></p> <p>M1.3: Yes, INPESCA is a private institution that works specifically in the southern region of Chile and they collaborate with IFOP; I changed the structure of the paragraph to avoid this confusion.          M1.4: The explanation of how this index is calculated is explained in M2.1.</p>
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*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	Yes
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associated guidance?	
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 accurate (i.e. do the scores reflect the evidence provided)?	Yes
Section M - Management	See notes
Category A Species	Yes
Category B Species	n/a
Category C Species	n/a
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. 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 consistent with the MT standard and requirements. The evidence provided is adequate and the scores clearly justified.	
Certification Body response	
Thank you. no comment required.	

2. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	Yes
Yes, the MT assessment methodology has been adequately used.	
Certification Body response	
Thank you. no comment required.	

3. Does the species categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	Yes
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Yes, the Chilean Fisheries Development Institute (IFOP) Scientific Observer Program has been used for categorization which is considered the more reliable source of information.

**Certification Body response**

Thank you. no comment required.

<b>3a. Are the “Category A Species” scores clearly justified?</b>	<b>Yes</b>
Yes, two category A species identified (Anchovy and Araucanian herring). A stock assessment is at least annually conducted for both species and they are above the Blimit. A CBA is set based on the results of the stock assessment. No issues identified.	
<b>Certification Body response</b>	
Thank you. no comment required.	

<b>3b. Are the “Category B Species” scores clearly justified?</b>	<b>n/a</b>
N/A No category B species identified	
<b>Certification Body response</b>	
N/A	

<b>3c. Are the “Category C Species” scores clearly justified?</b>	<b>n/a</b>
N/A No category C species identified	
<b>Certification Body response</b>	
N/A	

<b>3d. Are the “Category D Species” scores clearly justified?</b>	<b>Choose an item.</b>
Yes, two species (stary butterfish and mote sculpin) have been identified as category D species (in the artisanal fishery). A PSA has been conducted. Scores seem to eb adequate. Both species pass against table D(b)	
<b>Certification Body response</b>	
Thank you. no comment required.	

<b>Are the scores in “Section E – Ecosystem Impacts” clearly justified?</b>	<b>Yes</b>
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Yes, the information provided is adequate. Some minor comments

E1.2 No interactions with ETP species reported by the fishery (but some NT and VU species).

E1.3 I understand that the information given in the second paragraph about mitigation measures refer to longlines. Is any specific measure to avoid the catch of seabirds in the purse seine fishery?

E.2 Purse seine, no expected interactions with habitats, correct. Although in Peru some interaction of artisanal purse seines in coastal (shallow) areas has been documented. Any information on that in Chile?.

**Certification Body response**

E1.2: the comment about "but some NT and VU species" has been added.

E1.3: This two fisheries are those with a national plan for bird conservation, thats why the implementation of this measures are mandatory. In the case of Purse seine, this practices are suggested, but nomandatory. This information has been added.

E2 I didn't found kind of docuemntation about this in Chile.

**Optional: General peer reviewer comments on the draft report**

The assessment determination rationale is very complete. Only one comment, I understand category D species pass against table D(b) instead of D3.

**Certification Body response**