



MarinTrust Standard V2

Whole fish Fishery Assessment *Chilean anchovy (Engraulis ringens) and Araucanian herring (Strangomera bentincki)*

FAO 87, Chilean EEZ Regions V-X

MarinTrust Programme

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Table 1 Application details and summary of the assessment outcome

Application details and summary of the assessment outcome			
Name(s): Corpesca			
Country: Chile			
Email address:		Applicant Code	
Certification Body Details			
Name of Certification Body:		Global Trust Certification	
Assessor Name	CB Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Dr. Ivan Mateo	Léa Lebechnech	3	Surveillance 1
Assessment Period	To July 2022		
Scope Details			
Management Authority (Country/State)		Chile Undersecretary for Fisheries and Aquaculture (SUBPESCA) The Chilean Jack mackerel is also managed by the South Pacific Regional Fisheries Management Organisation (SPRFMO)	
Main Species		Anchoveta, <i>Engraulis ringens</i> Araucanian herring (<i>Strangomera bentincki</i>)	
Fishery Location		FAO 87 Pacific Southeast, Chile EEZ, Regions V to X	
Gear Type(s)		Purse seine	
Outcome of Assessment			
Overall Outcome		Pass	
Clauses Failed		None	
CB Peer Review Evaluation		Approve	
Fishery Assessment Peer Review Group Evaluation		Approve see report	
Recommendation		Approve	

Table 2. Assessment Determination

Assessment Determination
If any species is categorised as Endangered or Critically Endangered on IUCN's Red List, or if it appears in the CITES appendices, it cannot be approved for use as Marin Trust raw material. Anchoveta (<i>Engraulis ringens</i>); Araucanian herring (<i>Strangomera bentincki</i>) do not appear as Endangered or Critically Endangered on IUCN's Red List, nor does it appear in CITES; therefore, the three species are eligible for approval for use as Marin Trust whole fish raw material. Chilean anchovy (Anchoveta, <i>Engraulis ringens</i>) and Araucanian herring (Sardina, <i>Strangomera bentincki</i>) in the V-X Regions are harvested as part of a mixed pelagic fishery. These species are caught during the same period and area by industrial fleets that fish for both using the same fishing gear (which is non-selective). Discarding represents less than 10% of catches in industrial fisheries. The Subsecretaria de Pesca (Undersecretariat of Fisheries, SUBPESCA or SSP); positioned within the Chilean Ministry (MINECOM), provides policy settings and regulatory framework for domestic management of the sector. The Instituto de Fomento Pesquero (Fisheries Development Institute, IFOP) is the research arm; providing scientific advice to SUBPESCA on fisheries and aquaculture issues. A management plan for Chilean anchovy and Araucanian herring (Chile V-X) has been officially adopted¹. The plan sets lines of action to address biological, economic, social and ecological matters. Fixed and mobile temporal closures to protect spawning stock and juveniles are included. Catches are reported annually. Catch limits are modified in an adaptive way during the year to account for updated scientific data. Direct hydroacoustic surveys (Chilean anchovy and Araucanian herring) have been conducted biannually since 1999. According to the latest assessment CCT-PP (Scientific and Technical Committee formed by IFOP and SUBPESCA) confirmed that the anchovy stock (V-X) is not overfished and overfishing is not happening. Araucanian herring stocks are also above limits in the last stock assessment carried out for these species. ETP, habitat and ecosystems do not present important changes from the previous assessment as the fishery still operate in the same way and impacts on these components of the ecosystem are not relevant. The assessor recommends the approval of Chilean anchovy V-X <i>Engraulis ringens</i> whole-fish (Category A); Araucanian herring <i>Strangomera bentincki</i> whole-fish (Category A) for the production of fishmeal and/or fish oil under the current Marin Trust Whole fish and by-product Standard (v 2.2).
Fishery Assessment Peer Review Comments
The internal peer reviewer notes that the fishery is subject to a well-structured management plan for Chilean anchovy and Araucanian herring (Chile V-X). The considered species are subject to suitable fishing mortality rates and are not overfished. The impacts of this fishery on the ecosystems are not considered relevant.

¹ https://www.subpesca.cl/portal/616/articles-94523_documento.pdf

The internal peer reviewer agrees with the assessment findings and the recommendation of this report: approval of Chilean anchovy V-X *Engraulis ringens* whole-fish (Category A); Araucanian herring *Strangomera bentincki* whole-fish (Category A) for the production of fishmeal and/or fish oil under the current Marin Trust Whole fish and by-product Standard (v 2.0).

Notes for On-site Auditor

Table 3 General Results

General Clause	Outcome (Pass/Fail)
M1 - Management Framework	Pass
M2 - Surveillance, Control and Enforcement	Pass
F1 - Impacts on ETP Species	Pass
F2 - Impacts on Habitats	Pass
F3 - Ecosystem Impacts	Pass

Table 4 Species- Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A	Anchoveta (<i>Engraulis ringens</i>)	28.51%	A1	Pass
			A2	Pass
			A3	Pass
			A4	Pass
Category A	Araucanian herring (<i>Strangomera bentincki</i>)	71.49%	A1	Pass
			A2	Pass
			A3	Pass
			A4	Pass

Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category ²	% of landings	Management	Category
Anchoveta	<i>Engraulis ringens</i>	Central-Southern Chile	Least concern	28.51%	SUBPESCA	A
Araucanian herring	<i>Strangomera bentincki</i>	Araucanian herring Regions V to X	Least concern	71.49%	SUBPESCA	A
Species categorisation rationale						
The species categorisation was done following Marin Trust criteria for species categorisation. The assessor used information from the latest report Programa de investigación y monitoreo del descarte y la captura de pesca incidental en pesquerías pelágicas, 2020-2021 ³						

² <https://www.iucnredlist.org/>

³ <https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIofop/InformeFinal/2021/P-581168.pdf>

MANAGEMENT

The two clauses in this section (M1, M2) relate to the general management regime applied to the fishery under assessment. The clauses should be completed by providing sufficient evidence to justify awarding each of the requirements a pass or fail rating. A fishery must meet all the minimum requirements in every clause before it can be recommended for approval.

There have been no changes from last year, so the information remains the same.

M1	Management Framework – Minimum Requirements		
	M1.1	There is an organisation responsible for managing the fishery.	Yes
	M1.2	There is an organisation responsible for collecting data and assessing the fishery.	Yes
	M1.3	Fishery management organisations are publicly committed to sustainability.	Yes
	M1.4	Fishery management organisations are legally empowered to take management actions.	Yes
	M1.5	There is a consultation process through which fishery stakeholders are engaged in decision-making.	Yes
	M1.6	The decision-making process is transparent, with processes and results publicly available.	Yes
Clause outcome:			Pass

There have been no changes from last year, so the information remains the same.

M1.1 There is an organisation responsible for managing the fishery.

MINECON (Actions of Chile's Ministry of Economy, Development and Tourism) is the organism involved in promoting the development of the fisheries sector, along with the protection, conservation, and full use of resources and the marine environment. Chile's institutional structure involves governing the fisheries sector centres around three key organisations, with several other institutions providing additional research and enforcement:

- The Subsecretaria de Pesca (Undersecretariat of Fisheries, SUBPESCA or SSP); positioned within MINECOM; provides policy settings and regulatory framework.
- The Servicio Nacional de Pesca (National Fisheries Service, SERNAPESCA) is also based within MINECOM. Responsible for executing fisheries policy through enforcement.
- The Instituto de Fomento Pesquero (Fisheries Development Institute, IFOP) is the research arm of the institutional framework and the primary source of scientific advice to SUBPESCA.

The LGPA N° 18.892 issued in 1989 and, in particular, the modifications made under law N° 20.657 of February 9th, 2013 is the current law that these organisations follow to manage the fisheries in Chile.

There is an organisation responsible for managing the fishery. **Sub-clause M1.1 is met.**

M1.2 There is an organisation responsible for collecting data and assessing the fishery.

IFOP (Instituto de Fomento Pesquero) is the organization responsible for sampling stocks and carrying out annual acoustic surveys. IFOP is a non-profit organisation created in 1964 under a joint agreement between the Chilean government, the FAO, and the UN Development Program. (UNDP). IFOP'S public role is to support sustainable development of Chile's fishing sector.

A Scientific and Technical Committee for Small Pelagic fisheries (Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, CCT-PP), formed by IFOP and SUBPESCA, analyse updates on stock status and catch projections and make official recommendations to the authorities. Further, South Pacific Regional Fisheries Management Organisation (SPRFMO) is coordinated with IFOP for highly migratory stocks caught in the mixed pelagic fisheries.

There are organizations responsible for collecting data and assessing the fishery. **Sub-clause M1.2 is met.**

M1.3 Fishery management organisations are publicly committed to sustainability.

IFOP gives advice to SUBPESCA to set up ABC every fishing season. Overall ABC's are agreed for certain stocks, with a part under Conservation and Management Measures (CMM's) applying to international waters outside Chile's EEZ. Furthermore,

as laid down in the LGPA (see M1.4) one of the main objectives of the Act is to guarantee sustainability of Chile's marine resources. Long term management plans, which reference the Act, ensure rules are in place to achieve this objective. MINECON's mission statement, available on their website, is to generate feasible and sustainable development, with stable progressive equality in the allocation of economic interests.

Fishery management organisations are publicly committed to sustainability. **Sub-clause M1.3 is met.**

M1.4 Fishery management organisations are legally empowered to take management actions.

Created in 1976 and adopted for this fishery in 2013, the primary legal instrument for fisheries management in Chile has been la Ley General de Pesca y Acuicultura (LGPA) No. 20.657. The LGPA is a modification of the previous fisheries legislation, and includes:

- Commitments convened to manage the sustainable use and conservation of marine resources
- Commitments convened to make key decisions on conservation measures based on scientific information above all other considerations.
- Recommendations of Scientific and Technical Committees (CCT-PP) have been made mandatory for all stakeholders.

The LGPA also includes commitments to develop management plans for any fishery with restricted access, and to review and update these plans every five years. Article 5 of the LGPA states that SUBPESCA should determine Biological Reference Points (BRP's) for all targeted stocks. Biologically Acceptable Catches (BAC's) and resource recovery plans are implemented under Article 9.

SUBPESCA resolution No 291/2015 states that all stocks should be exploited around the MSY level, and that the MSY is the objective to be considered when quotas are established.

Fishery management organisations are legally empowered to take management actions. **Sub-clause M1.4 is met.**

M1.5 There is a consultation process through which fishery stakeholders are engaged in decision-making.

Management Plans set lines of action to address biological, economic, social and ecological matters. There is consultation and evaluation of a series of harvest control rules and definitions of robust rules to allow viable mixed fisheries. Minutes of these and other CCT-PP meetings are published on the relevant websites. A National Fisheries Council created by the Fisheries and aquaculture Law LGPA No. 18.892, ensures the participation of all stakeholders in the fisheries and aquaculture sector.

There is a consultation process through which fishery stakeholders are engaged in decision-making. **Sub-clause M1.5 is met.**

M1.6 The decision-making process is transparent, with processes and results publicly available.

The status of each managed stocks is annually public in the memorandum "Estado de situación de las principales pesquerías en Chile ". In this report information from the Committee for small fisheries and IFOP are taken into account by SUBPESCA to establish management plans.

Therefore, the system is transparent; all information is available in official websites. Should more details be needed they can be obtained under request. **Sub-clause M1.6 is met.**

References

Subpesca website

<https://www.subpesca.cl/portal/616/w3-propertyname-505.html>

<https://www.subpesca.cl/portal/616/w3-propertyvalue-51143.html#collapse03>

IFPO website

<https://www.ifop.cl/en/>

Links	
MarinTrust Standard clause	1.3.1.1, 1.3.1.2
FAO CCRF	7.2, 7.3.1, 7.4.4, 12.3
GSSI	D.1.01, D.4.01, D2.01, D1.07, D1.04,

M2	Surveillance, Control and Enforcement - Minimum Requirements		
	M2.1	There is an organisation responsible for monitoring compliance with fishery laws and regulations.	Yes
	M2.2	There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken.	Yes
	M2.3	There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing.	Yes
	M2.4	Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS.	Yes
Clause outcome:			Pass

There have been no changes from last year, so the information remains the same.

M2.1 There is an organisation responsible for monitoring compliance with fishery laws and regulations.

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

- SERNAPESCA: Carry out audits of capture fisheries; implement surveillance and control of compliance with all legal provisions relating to fisheries. Health and environmental monitoring of aquaculture. Develop strategies and procedures for prevention, surveillance and control of high-risk diseases. Information and sectoral statistics. Managing fisheries and aquaculture records.
- Chilean Navy: Within Chile's Exclusive Economic Zone (EEZ) the Navy monitor an area covering approximately 4,542,990 km² ensuring the prevention of depredation of natural resources by protecting the ecosystem from unauthorized activities.
- Observer Programme: There is a plan of reduction of the bycatch of the species that is reviewed periodically and the information is used to establish the limits of additional catches in the fishery.

There is an organisation responsible for monitoring compliance with fishery laws and regulations. **Sub-clause 2.1 is met.**

M2.2 There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken.

The LGPA defines a range of sanctions for offences including fishing with an unlicensed vessel, illegal discarding, incorrect logbook use, failure to report landings and fishing in a region or fishery other than the one for which the vessel is licenced. Other sanctions are in place for industrial vessels landing more fish than they have quota for. Depending on the offence, sanctions can include one or a combination of: monetary penalties; suspension of fishing licence; and revocation of licence. There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken. **Sub-clause M2.2 is met.**

M2.3 There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing.

In 2005, a national action plan was approved with the aim of preventing, deterring and eliminating IUU fishing. The fishery is monitored and there is no currently no evidence of widespread IUU fishing activities. Chile is now involved in an international program to avoid illegal fishing; "Acuerdo sobre medidas del Estado rector del Puerto "(Port State Measures)." This program obliges landings from other countries to be controlled by Chile and applies to foreign flagged vessels fishing in Chilean waters. There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing. **Sub-clause M2.3 is met.**

M2.4 Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS.

Industrial vessels operate under mandatory VMS monitoring. SERNAPESCA carry out audits of capture fisheries; implementing surveillance and control of compliance. Compliance with the management policies adopted proves high, being encouraged by a supervision and control system that has been applied for several years. In 2019, this inspection body (SERNAPESCA) was reinforced (MEFT 2019a). SERNAPESCA took control of monitoring the landings. That was carried out by an external private company in previous years.

Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS. In the 2021 annual report the more frequent non-compliance reported in this fishery was the access to closed areas. **Sub-clause M2.4 is met.**

References

SUBPESCA website

<https://www.subpesca.cl/portal/616/w3-propertyname-505.html>

<https://www.subpesca.cl/portal/616/w3-propertyvalue-51143.html#collapse03>

SERNAPESCA. (n.d.). Estadísticas | Servicio Nacional de Pesca y Acuicultura.

<http://www.sernapesca.cl/informes/estadisticas>

Sernapesca. 2021. Fiscalización en Pesca y Acuicultura. Informe de actividades 2021. Servicio Nacional de Pesca y Acuicultura. 117 pp. SERNAPESCA. http://www.sernapesca.cl/sites/default/files/ifpa_2021_0.pdf

MEFT. 2019a. Ley no 21.132. Moderniza y fortalece el ejercicio de la función pública del Servicio Nacional de Pesca. Ministerio de Economía, Fomento y Turismo. Diario Oficial de la República de Chile. 31 de Enero de 2019. 13 pp. <https://www.diariooficial.interior.gob.cl/publicaciones/2019/01/31/42268/01/1539585.pdf>

Links	
MarinTrust Standard clause	1.3.1.3
FAO CCRF	7.7.2
GSSI	D1.09

CATEGORY A SPECIES

The four clauses in this section apply to Category A species. Clauses A1 - A4 should be completed for **each** Category A species. If there are no Category A species in the fishery under assessment, this section can be deleted. A Category A species must meet the minimum requirements of all four clauses before it can be recommended for approval. The clauses should be completed by providing sufficient evidence to justify awarding each of the requirements a pass or fail rating. The species must achieve a pass rating against all requirements to be awarded a pass overall. **If the species fails any of these clauses it should be re-assessed as a Category B species.**

Species Name		Chilean Anchovy, <i>Engraulis ringens</i>																																																																													
A1	Data Collection - Minimum Requirements																																																																														
	A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	Yes																																																																												
	A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	Yes																																																																												
Clause outcome:			Pass																																																																												
A1.1 Landings data are collected such that the fishery-wide removals of this species are known. Fishery-dependent data is collected through port sampling of landings (SERNAPESCA Inspectors) and observer reports (IFOP directed). In 2021 the landings reported by SERNAPESCA in all the regions were reported at 606,924 tonnes and in the areas under assessment the reported data were as follows: <table border="1"> <thead> <tr> <th>Especie/Region</th> <th>ANCHOVETA</th> <th>SARDINA COMUN</th> <th>JUREL</th> </tr> </thead> <tbody> <tr><td>XV</td><td>151,946</td><td>-</td><td>4,158</td></tr> <tr><td>I</td><td>147,126</td><td>-</td><td>45,193</td></tr> <tr><td>II</td><td>83,766</td><td>-</td><td>10,360</td></tr> <tr><td>III</td><td>21,475</td><td>-</td><td>28,307</td></tr> <tr><td>IV</td><td>27,403</td><td>-</td><td>12,257</td></tr> <tr><td>V</td><td>-</td><td>221</td><td>145</td></tr> <tr><td>VI</td><td>-</td><td>-</td><td>11</td></tr> <tr><td>VII</td><td>-</td><td>-</td><td>284</td></tr> <tr><td>XVI</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>VIII</td><td>162,103</td><td>270,043</td><td>524,109</td></tr> <tr><td>IX</td><td>-</td><td>-</td><td>39</td></tr> <tr><td>XIV</td><td>8,822</td><td>72,781</td><td>1,448</td></tr> <tr><td>X</td><td>4,275</td><td>1,070</td><td>3</td></tr> <tr><td>XI</td><td>8</td><td>-</td><td>66</td></tr> <tr><td>XII</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>AI</td><td>-</td><td>-</td><td>32,338</td></tr> <tr><td>BF</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>Total</td><td>606,924</td><td>344,115</td><td>658,718</td></tr> </tbody> </table> *Source: SERNAPESCA annual landings report Landings data are collected such that the fishery-wide removals of this species are known. Sub-clause A1.1 is met. A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated. Hydro acoustic surveys have been conducted biannually since 1999 by means of two cruises: RECLAS in January (summer season; over the recruitment period) and PELACES in May (autumn season). As this method does not consider stock reproductive dynamics, assessments of SSB for small pelagic fish with partial spawning are conducted through the Daily Egg Production Method (DEPM). Intra-annual updates of stock assessment, advice and quota are conducted as updated information becomes available from (April-May) and summer (Dec-Jan) research surveys mentioned above. In the last technical				Especie/Region	ANCHOVETA	SARDINA COMUN	JUREL	XV	151,946	-	4,158	I	147,126	-	45,193	II	83,766	-	10,360	III	21,475	-	28,307	IV	27,403	-	12,257	V	-	221	145	VI	-	-	11	VII	-	-	284	XVI	-	-	-	VIII	162,103	270,043	524,109	IX	-	-	39	XIV	8,822	72,781	1,448	X	4,275	1,070	3	XI	8	-	66	XII	-	-	-	AI	-	-	32,338	BF	-	-	-	Total	606,924	344,115	658,718
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report from CCT the TAC was not modified until next results from autumn survey become available. With that in mind, it can be concluded that information is collected.

Sufficient additional information is collected to enable an indication of stock status to be estimated. **Sub-clause A1.2 is met**

References

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

CCT-PP. 2021. Reporte Técnico N°4 de la segunda sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020.

Links

MarinTrust Standard clause	1.3.2.1.1, 1.3.2.1.2, 1.3.2.1.4, 1.3.1.2
FAO CCRF	7.3.1, 12.3
GSSI	D.4.01, D.5.01, D.6.02, D.3.14

A2	Stock Assessment - Minimum Requirements		
	A2.1	A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species.	Yes
	A2.2	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	Yes
	A2.3	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	Yes
	A2.4	The assessment is subject to internal or external peer review.	Yes
	A2.5	The assessment is made publicly available.	Yes
Clause outcome:			Pass
A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species. Hydro acoustic surveys have been conducted biannually since 1999 by means of two cruises: RECLAS in January (summer season; over the recruitment period) and PELACES in May (autumn season). Together with fishery-dependent data IFOP conduct annual stock status assessments which are presented every year to SUBPESCA through meetings of the Scientific Committee for Small Pelagics (CCT-PP). Sub-clause A2.1 is met.			
A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy. On the latest stock assessment (September 2021), it was shown that the resource anchoveta from Valparaiso to Los Lagos, was not overfished ($SSB/SSB_{MSY}=1.37$) and overfishing is not occurring ($F/F_{MSY}=0.842$)(Figure 1). The latest SSB value is 31% above the BMSY with a probability of $p=0.03$ of being overfished for year 2021. The Fishing Mortality (F) is 16% below the FMSY with a probability of $p=0.09$ of overfishing occurring for year 2021.			

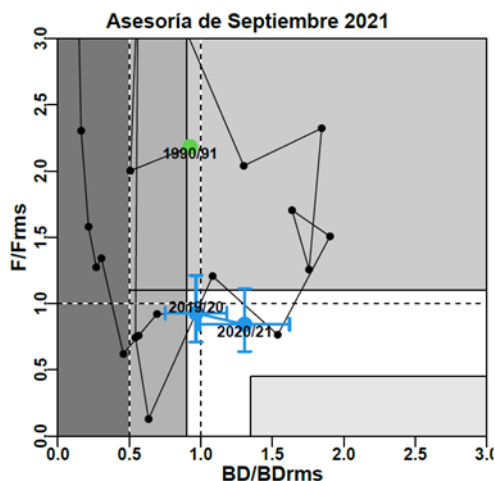


FIGURE 1. Kobe plot for Anchoveta in the region Valparaíso to Los Lagos. (SUBPESCA 2022).

The stock assessment provides an estimate of the status of the biological stock relative to a reference point or proxy. **Sub-clause A2.2 is met**

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

TACs are defined every year following the scientific advice (SUBPESCA 2022). For 2022 the TAC has been set up in a range of 138,652-173,315 tonnes (SUBPESCA 2022). Nonetheless, the assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status. Currently, the advised TAC takes into account an estimate of discards, discounting 2% of these to the estimated catch levels. This range was calculated considering the historic average recruitment and a risk of 30% to not attain the management goal (CCT-PP 2020a). **Sub-clause A2.3 is met.**

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

Stock assessments and the management approach used in the fishery undergo detailed peer review through annual CCT-PP meetings. These peer reviews can be considered both internal and external as members of committees' present may also be outside the assessment process. Both IFOP and SUBPESCA have also commissioned external peer reviews for their publications. The Chilean authorities have also invited international experts to evaluate their setting of biological reference points within the MSY framework. **Sub-clause A2.4 is met.**

A2.5 The assessment is made publicly available.

Reports stock assessments and advice on TAC's can be found on IFOP and SUBPESCA websites. ACTAS published on SUBPESCA's website give summaries of the stock assessment process and confirm final decisions on BAC's. Stock-recruitment and spawning period are closely monitored by IFOP and published in monthly bulletins (INFORMES) which also contain details of closed seasons by area and general information on current stock status. All the information is available however some of them is under request. **Sub-clause A2.5 is met.**

References

SUBPESCA 2022. Estado de situación de las principales pesquerías chilenas, año 2021.

https://www.subpesca.cl/portal/618/articles-114817_recurso_1.pdf

CCT-PP. 2020d. Reporte Técnico N°2 de la segunda sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020.

https://www.subpesca.cl/portal/616/articles-107764_documento.

Links	
MarinTrust Standard clause	1.3.2.1.2, 1.3.2.1.4, 1.3.1.2
FAO CCRF	12.3
GSSI	D.5.01, D.6.02, D.3.14

A3	Harvest Strategy - Minimum Requirements		
	A3.1	There is a mechanism in place by which total fishing mortality of this species is restricted.	Yes
	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.	Yes
	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).	Yes
Clause outcome:			Pass
A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted. The TAC is set up every year following scientist recommendations and data from historical series of data and biannual surveys. BAC's are divided into three categories: research, industrial and artisanal. The number of commercial landings permitted are subject to change depending on survey results. Normally BAC's are set up for two fishing seasons, effort may be controlled depending on the period of the year. By Chilean Law (LGPA Law No. 20.657) recommendations are provided as a range with the lower limit as 20% of actual recommendations. Workshops have been provided by Government to demonstrate best fishing practice including minimising discards and bycatch. Temporary closure orders have been issued by Government when high proportions of juvenile anchovy have been detected. When large quantities of juveniles are detected closure orders may be extended for periods of one week to fifteen days or more. A maximum catch limit per owner regime has been established for industrial sector (Regions V, VIII and X). All these strategies implemented allow control the fishing pressure and therefore there are mechanism to control F. Therefore, sub-clause A3.1 is met. 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. TACs are in place since 2001 and are split to accommodate commercial and research purposes. TAC's are allocated to the industrial fishery in three periods (January-April 85%, May-August 7% and September-December 7%) considering seasonality of the catch and temporal closures that protect spawning stock and recruits. TACs are set up initially and can be corrected after acoustic surveys. Further, TACs are set up following different scenarios what allows certain flexibility to proceed depends on the status of the stock. In 2021 TAC for anchoveta in region V to X has not been modified after the first survey as the CCT-PP is waiting for the autumn survey to conclude is that TAC should be modified. Following the SERNAPESCA annual report of landings catches in the assessment area (V-X) were reported at 175,208 t and the Total quota allowed for the species in the area were defined as 210,167t, therefore the fishery has not exceeded the limits and regularly the levels of removal are in the line with the TAC. Therefore, sub-clause A3.2 is met. 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). In Chile Blim or Proxy is used to inform management decisions rather than prohibit fishery removals. The Fisheries Act (LGPA) does not establish catch restrictions when stocks are below limit biomass (for social and economic reasons and to facilitate further research). Instead, a resource recovery plan must be implemented. Management committees are required to elaborate and implement such recovery plans (Article 9 LGPA); implying reductions in fishing mortality at levels below or equal to FRMS. However due to removals are controlled following the advice, they are not exceeding the references points and therefore			

prohibitions are not needed. Further this year BAC has been reviewed and increased that means that the stock is not below limits (Subpesca 2020). **Therefore, sub-clause A3.3 is met.**

References

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CCT-PP. 2021b. Reporte técnico de la primera sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2021. SUBPESCA. 9 pp. https://www.subpesca.cl/portal/616/articles-110568_documento.pdf

CMSCA. 2021. Acta 1-2021. Sesión vía online. Comité de Manejo de la Sardina Común la y Anchoveta; regiones de Valparaíso a Los Lagos. 4 pp. https://www.subpesca.cl/portal/616/articles-110681_documento.pdf

SERNAPESCA 2022. Informe Estado Anual Cuotas Sector Artesanal e Industrial Año 2021

Standard clause 1.3.2.1.3

Links	
MarinTrust Standard clause	1.3.2.1.3, 1.3.2.1.4
FAO CCRF	7.2.1, 7.22 (e), 7.5.3
GSSI	D3.04, D6.01

A4

Stock Status - Minimum Requirements		
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.	Yes
Clause outcome:		Pass

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.
The stock is above the target reference point. On the latest stock assessment, it was shown that the resource anchoveta from Valparaíso to Los Lagos, was not overfished ($SSB/SSB_{MSY}=1.37$) and overfishing is not occurring ($F/F_{MSY}=0.842$). The latest SSB value is 31% above the BMSY with a probability of $p=0.03$ of being overfished for year 2021. The Fishing Mortality (F) is 16% below the FMSY with a probability of $p=0.09$ of overfishing occurring for year 2021. **Therefore, sub-clause A4.1 is met.**

References
SUBPESCA 2022. Estado de situación de las principales pesquerías chilenas, año 2021.
https://www.subpesca.cl/portal/618/articles-114817_recurso_1.pdf

CCT-PP. 2020d. Reporte Técnico N°2 de la segunda sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020. https://www.subpesca.cl/portal/616/articles-107764_documento_	
Links	
MarinTrust Standard clause	1.3.2.1.4
FAO CCRF	7.2.1, 7.2.2 (e)
GSSI	D6 01

Species Name		Araucanian herring, <i>Strangomera bentincki</i>																																																																													
A1	Data Collection - Minimum Requirements																																																																														
	A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	Yes																																																																												
	A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	Yes																																																																												
Clause outcome:			Pass																																																																												
A1.1 Landings data are collected such that the fishery-wide removals of this species are known.																																																																															
Fishery-dependent data is collected through port sampling of landings (SERNAPESCA Inspectors) and observer reports (IFOP directed). In 2021 the landings reported by SERNAPESCA in all the regions were reported at 344,115 tonnes and in the areas under assessment the reported data were as follows:																																																																															
<table><tr><th>Especie/Region</th><th>ANCHOVETA</th><th>SARDINA COMUN</th><th>JUREL</th></tr><tr><td>XV</td><td>151,946</td><td>-</td><td>4,158</td></tr><tr><td>I</td><td>147,126</td><td>-</td><td>45,193</td></tr><tr><td>II</td><td>83,766</td><td>-</td><td>10,360</td></tr><tr><td>III</td><td>21,475</td><td>-</td><td>28,307</td></tr><tr><td>IV</td><td>27,403</td><td>-</td><td>12,257</td></tr><tr><td>V</td><td>-</td><td>221</td><td>145</td></tr><tr><td>VI</td><td>-</td><td>-</td><td>11</td></tr><tr><td>VII</td><td>-</td><td>-</td><td>284</td></tr><tr><td>XVI</td><td>-</td><td>-</td><td>-</td></tr><tr><td>VIII</td><td>162,103</td><td>270,043</td><td>524,109</td></tr><tr><td>IX</td><td>-</td><td>-</td><td>39</td></tr><tr><td>XIV</td><td>8,822</td><td>72,781</td><td>1,448</td></tr><tr><td>X</td><td>4,275</td><td>1,070</td><td>3</td></tr><tr><td>XI</td><td>8</td><td>-</td><td>66</td></tr><tr><td>XII</td><td>-</td><td>-</td><td>-</td></tr><tr><td>AI</td><td>-</td><td>-</td><td>32,338</td></tr><tr><td>BF</td><td>-</td><td>-</td><td>-</td></tr><tr><td>Total</td><td>606,924</td><td>344,115</td><td>658,718</td></tr></table>				Especie/Region	ANCHOVETA	SARDINA COMUN	JUREL	XV	151,946	-	4,158	I	147,126	-	45,193	II	83,766	-	10,360	III	21,475	-	28,307	IV	27,403	-	12,257	V	-	221	145	VI	-	-	11	VII	-	-	284	XVI	-	-	-	VIII	162,103	270,043	524,109	IX	-	-	39	XIV	8,822	72,781	1,448	X	4,275	1,070	3	XI	8	-	66	XII	-	-	-	AI	-	-	32,338	BF	-	-	-	Total	606,924	344,115	658,718
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A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.																																																																															
Hydro acoustic surveys have been conducted biannually since 1999 by means of two cruises: RECLAS in January (summer season; over the recruitment period) and PELACES in May (autumn season). As this method does not consider stock reproductive dynamics, assessments of SSB for small pelagic fish with partial spawning are conducted through the Daily Egg Production Method (DEPM). Intra-annual updates of stock assessment, advice and quota are conducted as updated information becomes available from (April-May) and summer (Dec-Jan) research surveys mentioned above. In the last technical report from CCT the TAC was not modified until next results from autumn survey become available. With that in mind, it can be concluded that information is collected.																																																																															
Sufficient additional information is collected to enable an indication of stock status to be estimated. Sub-clause A1.2 is met.																																																																															
References																																																																															
http://www.sernapesca.cl/informacion-utilidad/anuarios-estadisticos-de-pesca-y-acuicultura																																																																															

CCT-PP. 2021. Reporte Técnico N°4 de la segunda sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020.	
Links	
MARINTRUST Standard clause	1.3.2.1.1, 1.3.2.1.2, 1.3.2.1.4, 1.3.1.2
FAO CCRF	7.3.1, 12.3
GSSI	D.4.01, D.5.01, D.6.02, D.3.14

A2	Stock Assessment - Minimum Requirements		
	A2.1	A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species.	Yes
	A2.2	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	Yes
	A2.3	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	Yes
	A2.4	The assessment is subject to internal or external peer review.	Yes
	A2.5	The assessment is made publicly available.	Yes
Clause outcome:			Pass
A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species. As mentioned for anchoveta, the Araucanian herring is caught in a mixed pelagic fishery which is monitored by different acoustic surveys. Hydro acoustic surveys have been conducted biannually since 1999 by means of two cruises: RECLAS in January (summer season; over the recruitment period) and PELACES in May (autumn season). Together with fishery-dependent data IFOP conduct annual stock status assessments which are presented every year to SUBPESCA through meetings of the Scientific Committee for Small Pelagics (CCT-PP). Data as spatial distribution, climate conditions and size distribution are also considered in the models to estimate the stock status. Sub-clause A2.1 is met.			
A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy. Reference points are reviewed in the Scientific Committee for Small Pelagics (CCT-PP) when needed. Reference points are still defined as per CCT-PP N1 /2015 (Res.EX N291, 2015) are as follows: BDRMS=60% BDPR or 55% BDo; BDlimit= 27.5 % BDo and FRMS= F60%BDR. Each annual assessment provides updates on reference points calculated relative to stock status. Stock status is referenced using Kobe plots. In the last stock assessment of 2022, the CCT-PP has defined the stock as overfished (SSB/SSBMSY=0.601) and overfishing is occurring (F/FMSY=1.108)(Figure 2). The SSB was below 40 % from the SSBMSY and Fishing mortality (F=0.33) was 11% above the FMSY:			

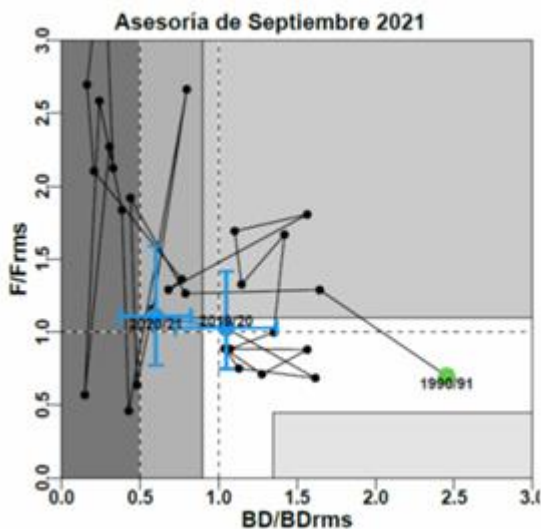


Figure 2. Kobe plot for Aracaunian herring in the region Valparaíso to Los Lagos. (SUBPESCA 2022).

The stock assessment provides an estimate of the status of the biological stock relative to a reference point or proxy. **Sub-clause A2.2 is met.**

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

TACs are defined every year following the scientific advice. For 2022 the TAC has been set up in a range of 258,403-323,004 tonnes. Nonetheless, the assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status. Currently, the advised TAC takes into account an estimate of discards, discounting 2% of these to the estimated catch levels. This range was calculated considering the historic average recruitment and a risk of 30% to not attain the management goal (CCT-PP 2020a). **Sub-clause A2.3 is met.**

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

Stock assessments and the management approach used in the fishery undergo detailed peer review through annual CCT-PP meetings. These peer reviews can be considered both internal and external as members of committees' present may also be outside the assessment process. Both IFOP and SUBPESCA have also commissioned external peer reviews for their publications. The Chilean authorities have also invited international experts to evaluate their setting of biological reference points within the MSY framework. **Sub-clause A2.4 is met.**

A2.5 The assessment is made publicly available.

Reports stock assessments and advice on TAC's can be found on IFOP and SUBPESCA websites. ACTAS published on SUBPESCA's website give summaries of the stock assessment process and confirm final decisions on BAC's. Stock-recruitment and spawning period are closely monitored by IFOP and published in monthly bulletins (INFORMES) which also contain details of closed seasons by area and general information on current stock status. All the information is available however some of them is under request. **Sub-clause A2.5 is met.**

References

CCT-PP. 2020d. Reporte Técnico N°2 de la segunda sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020.

http://www.subpesca.cl/portal/616/articles-107764_documento.pdf

SUBPESCA 2022. Estado de situación de las principales pesquerías chilenas, año 2021.

https://www.subpesca.cl/portal/618/articles-114817_recurso_1.pdf

Links	
MARINTRUST Standard clause	1.3.2.1.2, 1.3.2.1.4, 1.3.1.2
FAO CCRF	12.3
GSSI	D.5.01, D.6.02, D.3.14

A3	Harvest Strategy - Minimum Requirements		
	A3.1	There is a mechanism in place by which total fishing mortality of this species is restricted.	Yes
	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.	Yes
	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).	Yes
Clause outcome:			Pass
A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted. The TAC is set up every year following scientist recommendations and data from historical series of data and biannual surveys. TAC's are divided into three categories: research, industrial and artisanal. The number of commercial landings permitted are subject to change depending on survey results. Normally BAC's are set up for two fishing seasons, effort may be controlled depending on the period of the year. By Chilean Law (LGPA Law No. 20.657) recommendations are provided as a range with the lower limit as 20% of actual recommendations. Workshops have been provided by Government to demonstrate best fishing practice including minimising discards and bycatch. Temporary closure orders have been issued by Government when high proportions of juvenile anchovy have been detected. When large quantities of juveniles are detected closure orders may be extended for periods of one week to fifteen days or more. A maximum catch limit per owner regime has been established for industrial sector (Regions V, VIII and X). All these strategies implemented allow control the fishing pressure and therefore there are mechanism to control F. Sub-clause A3.1 is met.			
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. TACs are in place since 2001 and are split to accommodate commercial and research purposes. TAC's are allocated to the industrial fishery in three periods (January-April 85%, May-August 7% and September-December 7%) considering seasonality of the catch and temporal closures that protect spawning stock and recruits. BACs are set up initially and can be corrected after acoustic surveys. Further, TACs are set up following different scenarios what allows certain flexibility to proceed depends on the status of the stock. In 2021 TAC for anchoveta in region V to X has not been modified after the first survey as the CCT-PP is waiting for the autumn survey to conclude is that TAC should be modified. Following the SERNAPESCA annual report of landings the catches reported in the assessment area (V-X) were reported at 344,115 tonnes and the total TAC for the year were defined as 357.028 t, therefore, the fishery has not exceeded the limits. Sub-clause A3.2 is met.			
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). In Chile Blim or Proxy is used to inform management decisions rather than prohibit fishery removals. The Fisheries Act (LGPA) does not establish catch restrictions when stocks are below limit biomass (for social and economic reasons and to facilitate further research). Instead, a resource recovery plan must be implemented. Management committees are required to elaborate and implement such recovery plans (Article 9 LGPA); implying reductions in fishing mortality at levels below or equal to FRMS. However due to removals are controlled following the advice, they are not exceeding the references points and therefore			

prohibitions are not needed. Further this year BAC has been reviewed and increased that means that the stock is not below limits (SUBPESCA, 2020). **Sub-clause A3.3 is met.**

References

CCT-PP. 2020a. Informe Técnico N°2, de la sexta sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020. 53 pp. https://www.subpesca.cl/portal/616/articles-109051_documento.pdf

CCT-PP. 2020b. Informe Técnico N°1, de la cuarta sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020. 22 pp. https://www.subpesca.cl/portal/616/articles-108207_documento.pdf

CCT-PP. 2020c. Reporte Técnico N°1 de la primera sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2020. 18 pp. https://www.subpesca.cl/portal/616/articles-109918_documento.pdf

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CCT-PP. 2021a. Informe técnico no1 de la segunda sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos. 2021. 24 pp. https://www.subpesca.cl/portal/616/articles-110512_documento.pdf

CCT-PP. 2021b. Reporte técnico de la primera sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, año 2021. Subpesca. 9 pp. https://www.subpesca.cl/portal/616/articles-110568_documento.pdf

CMSA. 2021. Acta 1-2021. Sesión vía online. Comité de Manejo de la Sardina Común la y Anchoqueta; regiones de Valparaíso a Los Lagos. 4 pp. https://www.subpesca.cl/portal/616/articles-110681_documento.pdf

SERNAPESCA 2022. Informe Estado Anual Cuotas Sector Artesanal e Industrial Año 2021.

Standard clause 1.3.2.1.3

Links	
MARINTRUST Standard clause	1.3.2.1.3, 1.3.2.1.4
FAO CCRF	7.2.1, 7.22 (e), 7.5.3
GSSI	D3.04, D6.01

A4 Stock Status - Minimum Requirements		
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.	Yes
Clause outcome:		Pass
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 In the last stock assessment of 2022, the CCT-PP has defined the stock as overfished ($SSB/SSB_{MSY}=0.601$) and Overfishing is occurring ($F/F_{MSY}=1.108$). The SSB was below 40 % from the target biomass reference point SSB_{MSY} and Fishing mortality ($F=0.33$) was 11% above the F_{MSY}. Therefore, the biomass is above limit reference points and a fall below the limit reference point would result in fishery closure and Sub-clause A4.1 is met.		
References SUBPESCA 2022. Estado de situación de las principales pesquerías chilenas, año 2021. https://www.subpesca.cl/portal/618/articles-114817_recurso_1.pdf		
Links		

MARINTRUST Standard clause	1.3.2.1.4
FAO CCRF	7.2.1, 7.2.2 (e)
GSSI	D6 01

FURTHER IMPACTS

The three clauses in this section relate to impacts the fishery may have in other areas. A fishery must meet the minimum requirements of all three clauses before it can be recommended for approval.

F1	Impacts on ETP Species - Minimum Requirements		
	F1.1	Interactions with ETP species are recorded.	Yes
	F1.2	There is no substantial evidence that the fishery has a significant negative effect on ETP species.	Yes
	F1.3	If the fishery is known to interact with ETP species, measures are in place to minimise mortality.	Yes
Clause outcome:			Pass
There have been no changes from last year, so the information remains the same.			
F1.1 Interactions with ETP species are recorded. By law, all marine mammals, sea turtles and seabirds should be returned to the sea (MEFT 2012) and cannot be captured (MA 1996; MA 1998). There are also rules oriented to reduce bycatch and discards in the main fisheries, including the anchoveta fishery (MEFR 2013). Chile is a member of the Agreement of the Conservation of Albatrosses and Petrels and as such, it is committed to achieve and maintain a favourable conservation status of albatrosses and petrels. The list of species to which the agreement applies includes 22 species of albatross and 9 species of petrels (ACAP 2018). The national plan to reduce the incidental catches applies also for this fishery and IFOP carried out surveys and observer program to collect the data. Further, with the implementation in 2020 of the video camera recording, SERNAPESCA is analysing the information to ensure the reported data are in the line with the catches or incidental interactions. Since the Reduction plans were implemented, data are more accurate. Therefore, sub-clause F1.1 is met. F1.2 There is no substantial evidence that the fishery has a significant negative effect on ETP species. The discarding reduction plan established that all marine mammals, reptiles, penguins and other seabirds should be returned to the sea if not severely injured (MEFT 2019). The more recent report published by CIAM in 2019 showed that interactions with marine mammals were low. The main species that interact with the fishery is the sealion and the population is not decreasing due to fishing activities in Chile. Further 2 species of dolphin were observed in 2017-2018 (48 hauls observed) showing that the main interaction was to feed during the fishing operation. Regarding seabirds in the observed hauls the most representative bird, in winter and summer, accounting to more than 70% of the observations, was the grey gull (<i>Larus modestus</i>). Although this species may have a restricted range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The rest of species were observed in low percentage as it can be seen in Table 6 .			

Table 6. Species, number of specimens and percentage of observed species during the different fishing season over the year. Source: Presencia e interacción del ensamble de aves marinas durante faenas de pesca industrial de cerco de anchoveta (*Engraulis ringens*) en la zona norte de Chile. 2019.

Especies/N° total individuos	Invierno 5 lances	Invierno %	Otoño 25 lances	Otoño %	Primavera 16 lances	Primavera %	Verano 2 lances	Verano %
Albatros ceja negra	2	0,03	1	0,01	3	0,01	1	0,05
Albatros de Buller					3	0,01		
Fardela blanca			36	0,31	15	0,07	3	0,14
Fardela negra	417	5,50	4843	41,47	667	3,11	21	1,00
Fardela negra grande			2	0,02			1	0,05
Gaviota dominicana	13	0,17	20	0,17	6	0,03		
Gaviota franklin			1790	15,33	1956	9,11	182	8,70
Gaviota galápagos			1	0,01				
Gaviota garuma	5933	78,26	2922	25,02	17800	82,93	1482	70,84
Gaviota peruana	68	0,90	69	0,59	78	0,36		
Gaviotín elegante			6	0,05	1	0,00		
Gaviotín monja	109	1,44	974	8,34	554	2,58	251	12,00
Gaviotín sudamericano	17	0,22			30	0,14		
Golondrina de mar (O. gracilis)			6	0,05	16	0,07		
Golondrina de mar (O. markhami)			12	0,10	1	0,00	6	0,29
Golondrina de mar (O. oceanicus)			298	2,55	123	0,57		
Golondrina de mar (O. tethys)						0,00	10	0,48
Golondrina de mar (Oceanites sp.)					13	0,06		
Guanay	263	3,47			2	0,01		
Jote cabeza roja					1	0,00		
Pelicano	140	1,85	657	5,63	177	0,82	122	5,83
Petrel de más afuera							6	0,29
Petrel gigante							1	0,05
Pingüino hamboldt					1	0,00		
Piquero	611	8,06					4	0,19
Salteador chico			1	0,01	10	0,05		
Skua	8	0,11	38	0,33	8	0,04	2	0,10
Yeco			2	0,02				
N° total de aves	7581	100,00	11678	100,00	21465	100,00	2092	100,00

The other two species more frequently spotted were the Sooty Shearwater (*Ardenna grisea*) and the Pink footed shearwater (). The Sooty Shearwater population is classified as declining; however, the total number of mature individuals is estimated at 8,800,000 therefore due to the most impact detailed by the observer was feeding on the catch the fishery does not represent negative impact for this species. Pink footed shearwater (*Ardenna creatopus*) is seen in mixed colonies with sooty shearwater but in less percentage. Further the population is considered vulnerable in the area but however the trends are unknown although long-term breeding season monitoring suggest stable populations.

Same rationale was given to Peruvian booby (*Sula variegata*) which has defined as stable in the last stock assessment.

Anchovy fishery along with other small pelagic of this ecosystem can be a main prey species for some seabird's population. Food availability is managed by defining Marine Protected Areas where breeding is located. Since 2014 the Government of Chile has established different protective areas being reaching a 40 % of coverture of the EEZ in 2018. Some of these areas are protective ensure the ETPs are not impacted by fishing activities.

Having said that, there is no substantial evidence that the fishery has a significant negative effect on ETP species. **Therefore, sub-clause F1.2 is met.**

F1.3 If the fishery is known to interact with ETP species, measures are in place to minimise mortality.

The interaction of the fishery with ETP species is recently known after an analysis of the 2017-2019 time series⁴. Several mitigation measures have been recommended in the recently published discard reduction plan. Developments to improve knowledge of potential impacts of the fishery on ETP species include:

- A software platform developed for the registry of incidental fishing in the operation of industrial fleets (XV-X).
- On-board vessel protocols for the release and treatment of ETP fauna.
- Training programs for crews of fishing vessels.
- Increase the coverage of on-board observers.

Therefore, sub-clause F1.3 is met.

References

Vega, R., L. Ossa, B. Suárez, M. Jiménez, S. Henríquez, A. González, R. Ojeda, and et al. 2020. Programa de observadores científicos: Programa de investigación y monitoreo del descarte y la captura de pesca incidental en pesquerías pelágicas, 2019-2020. INFORME FINAL. Convenio de Desempeño 2019. 442 pp.

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Presencia e interacción del ensamble de aves marinas durante faenas de pesca industrial de cerco de anchoveta (*Engraulis ringens*) en la zona norte de Chile Centro de Investigación Aplicada del Mar S.A., CIAM Septiembre 2019.

MEFT. 2016. Resolución Exenta N° 2746-2016. Aprueba Plan de Manejo para la Pesquería de Sardina Común y Anchoveta V a la X Regiones. 2 pp

MEFT. 2019d. Decreto Exento 2186/2019. Establece nómina de especies objetivo y su fauna acompañante sometidas a los artículos 7oA, 7oB Y /oC de la Ley General de pesca y acuicultura para pesquería de Sardina Comun y anchoveta, Año 2019cuotas de captura de unidades de pesquería de recursos pelágicos pequeños que indica sometidas a licencias transables de pesca, año 2020. http://www.subpesca.cl/portal/615/articles-104596_documento.pdf

CIAM 2019. Informe final: Presencia e interacción del ensamble de aves marinas durante faenas de pesca industrial de cerco de Anchoveta (*Engraulis ringens*) en la zona norte de Chile. Pp81.

Links	
MarinTrust Standard clause	1.3.3.1
FAO CCRF	7.2.2 (d)
GSSI	D4.04, D.3.08

⁴ <https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2020/P-581156.pdf>

F2	Impacts on Habitats - Minimum Requirements		
	F2.1	Potential habitat interactions are considered in the management decision-making process.	Yes
	F2.2	There is no substantial evidence that the fishery has a significant negative impact on physical habitats.	Yes
	F2.3	If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.	Yes
Clause outcome:			Pass
There have been no changes from last year, so the information remains the same. F2.1 Potential habitat interactions are considered in the management decision-making process. Chile has established a great proportion of marine protected areas (MPAs), in 2018 Chile was one of the countries with more MPAs defined where fisheries activities take place, even above the international targets (SDGs and CBD- “Aichi target 11). All these areas are regulated under legislation and their effectiveness is monitored in the Technical Scientific Committee for Small Pelagics (CCT-PP) and managed by General Law on Fisheries and Aquaculture of 1991. To define these areas information from VMS is taken into account to enclose fishing grounds. Different information collected in surveys, observer program and directly from the fishery are further considered to define the closure areas for different seasons and fisheries. All the information is shared among the stakeholders involved in the CCT-PP where advices are given to SUBPESCA who finally decide the management strategies for all the component possible impacted by the fishery. Therefore, sub-clause F2.1 is met. F2.2 There is no substantial evidence that the fishery has a significant negative impact on physical habitats. No direct habitat damage is known in purse seine fisheries. Such damage is unlikely due to the gear types used (Source SPRFMO 2014). Artisanal purse seines can reach dimensions of 30 fathoms depth by 240 fathoms length (approx. 55 m x 249 m) while industrial purse seines can reach up to 60 x 500 fathoms (approx. 110 m x 915 m). This assessment is focussed on industrial purse seine and in general, the impact of this fishing gear on the seafloor is not a subject under technical or scientific debate, since these nets are usually deployed at greater depths, where bottom contact does not occur. Footprint of the fishery is also available due to the use of VMS therefore there is a monitoring system in place to avoid the entry in vulnerable and protected areas. Although as a pelagic fishery, interactions with these areas are very rare. Therefore, sub-clause F2.2 is met. F2.3 If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts. General Law (Ley de Pesca (L.G.P.A 20.657)) is in charge of managing the impact of the fisheries in the habitats. Measures are in place to monitor and control MPAs in Chile and to prevents the industrial fleet from entering the coastal zone to carry out extractive fishing operations. It has also become a conservation measure for the bulk of fishery resources that spawn near the coast and inland waters. The regulation is designed to protect coastal pelagic resources, being of benefit mainly to anchovy and Araucanian herring fisheries. Reserve zones may be temporarily suspended through authorizations for research fishing and dredging that allow temporary entries of industrial vessels into zones only in specific areas and only during specific periods. Therefore, there are mechanism in place to minimise the impact on habitats and mitigate the possible negative impacts that the fishing activities might create. Sub-clause F2.3 is met.			
References Fishsource Chilean Jack mackerel: https://www.fishsource.org/stock_page/756 SPRFMO. 2019b. CMM 01-2019 Conservation and Management Measure for <i>Trachurus murphyi</i> (Supersedes CMM 01-2018). 6 pp. SPRFMO HABITAT MONITORING WORKING GROUP 2019 Report 2pp. https://www.sprfmo.int/assets/2019-SC7/Reports/SPRFMO-SCW9-Report-2019.pdf			

Gatica, C., Arteaga, M., Giacaman, J., Ruiz, P. 2007. Tendencias en la biomasa de sardina común (*Strangomera bentincki*) y anchoveta (*Engraulis ringens*) en la zona centro-sur de Chile, entre 1991 y 2005. Invest. Mar., Valparaíso, 35(1): 13-24.

Iwamoto, T., Eschmeyer, W., Alvarado, J. 2010. *Engraulis ringens*. The IUCN Red List of Threatened Species 2010: e.T183775A8174811. <https://www.iucnredlist.org/species/183775/102904317>.

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<https://dx.doi.org/10.2305/IUCN.UK.2010-3.RLTS.T183965A8207652>

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MEFT. 2016. Resolución Exenta N° 2746-2016. Aprueba Plan de Manejo para la Pesquería de Sardina Común y Anchoveta V a la X Regiones. 2 pp

Links	
MarinTrust Standard clause	1.3.3.2
FAO CCRF	6.8
GSSI	D.2.07, D.6.07, D3.09

F3 Ecosystem Impacts - Minimum Requirements		
F3.1	The broader ecosystem within which the fishery occurs is considered during the management decision-making process.	Yes
F3.2	There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.	Yes
F3.3	If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals.	Yes
Clause outcome:		Pass

There have been no changes from last year, so the information remains the same.

F3.1 The broader ecosystem within which the fishery occurs is considered during the management decision-making process. Annual temporal closures for the anchovy and sardine fishery in V-X protects spawning stock and juveniles. These closures are mobile and depend on monitoring of the biological indicators. An introduction of a five-mile artisanal-exclusive zone near the shoreline has provided significant protection to spawners and other shallow-water organisms from industrial fishing activities. A maximum catch limit per owner regime has been established for the industrial sector (Regions V, VIII and X). Chile has

implemented five marine reserves (see below, Figure 3) with the objective of conserving natural banks of scallops, oyster and mussel, but also of dolphins and penguins. Fish stocks are known to be highly dependent on recruitment which in turn changes with environmental conditions and oceanographic conditions in the Chilean upwelling ecosystems like the El Niño and La Niña. Therefore, several components of the ecosystem are considered in the management of the fishery.

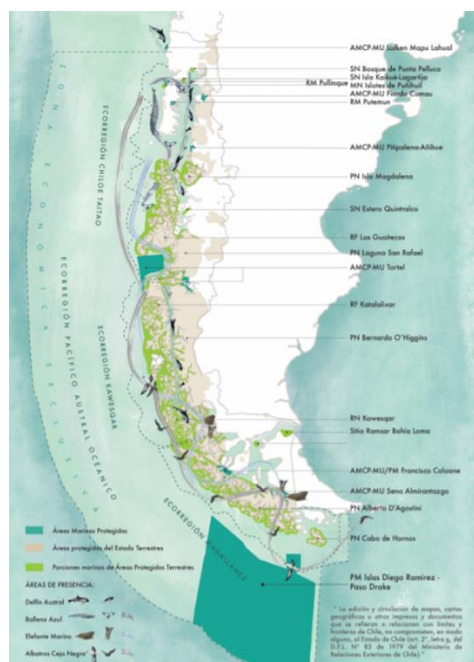


Figure 3. Distribution of all types of ETP Species under Marine Protected Areas in Chile. Source: Wild Conservation society and Waitt Foundation under the project *Creación de una red de áreas marinas protegidas en la Patagonia – Chile 2019*.

Due to the low trophic level of the species under consideration there can be an effect on other species which prey on the species under assessment. To account for predation of these species' models have been adapted. Models are taken into consideration resource competition between the fishery and top-predators (e.g., seabirds) to better understand the ecosystem needs. BACs are calculated considering different scenarios depends on environmental condition where ecosystem needs are also integrated. The more precautionary approach is taken and reviews are in place over the year resulting in BACs modifications if needed. Therefore, the ecosystem needs are continuously presented in the management strategies and therefore there is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.

F3.2 There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.

Due to the low trophic level of the species under consideration there can be an effect on other species which prey on the species under assessment. To account for predation of these species' models have been adapted. Models are taken into consideration resource competition between the fishery and top-predators (e.g. seabirds) to better understand the ecosystem needs. BACs are calculated considering different scenarios depends on environmental condition where ecosystem needs are also integrated. The more precautionary approach is taken and reviews are in place over the year resulting in BACs modifications if needed. Therefore, the ecosystem needs are continuously presented in the management strategies and therefore there is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.

F3.3 If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals.

This stock is highly dependent on recruitment which in turn changes with environmental conditions and oceanographic conditions in the important Chilean upwelling ecosystem, like the El Niño and La Niña. Therefore, to consider these environmental conditions, there have been set up different temporal closures for this fishery to protect spawning and juveniles over the year. These closures are mobile and depend on monitoring of the biologic indicators taking additional precaution in the allocation of the BACs every fishing season.

Further, the Ecosystem-based Fisheries Management (EBFM) concept has been integrated into the new Chilean Fisheries Act but many challenges are still preventing an ecosystem-level approach however new models are adopted to include ecosystems needs in the calculation of the TACs.

Sub-clauses F3.1;3.2 and 3.3 are met.

References

Fishsource Chilean Jack mackerel: https://www.fishsource.org/stock_page/756

SPRFMO. 2019b. CMM 01-2019 Conservation and Management Measure for *Trachurus murphyi* (Supersedes CMM 01-2018). 6 pp.

SPRFMO HABITAT MONITORING WORKING GROUP 2019 Report 2pp.

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MEFT. 2016. Resolución Exenta N° 2746-2016. Aprueba Plan de Manejo para la Pesquería de Sardina Común y Anchoveta V a la X Regiones. 2 pp

Links	
MarinTrust Standard clause	1.3.3.3
FAO CCRF	7.2.2 (d)
GSSI	D.2.09, D3.10, D.6.09

SOCIAL CRITERION

In addition to the scored criteria listed above, applicants must commit to ensuring that vessels operating in the fishery adhere to internationally recognised guidance on human rights. They must also commit to ensuring there is no use of enforced or unpaid labour in the fleet(s) operating upon the resource.

Glossary

Non-target: Species for which the gear is not specifically set, although they may have immediate commercial value and be a desirable component of the catch. OECD (1996), Synthesis report for the study on the economic aspects of the management of marine living resources. AGR/FI(96)12.

Target: In the context of fishery certification, the target catch is the catch of stock under consideration by the unit of certification – i.e., the fish that are being assessed for certification and ecolabelling (GSSI).

MarinTrust Fishery Assessment Peer Review Template

This section comprises a summary of the fishery being assessed against version 2 of the MarinTrust Standard.

Fishery under assessment	WF12 Chilean Anchovy (<i>Engraulis ringens</i>) and Araucanian herring (<i>Strangomera bentincki</i>)_FAO 87 Chilean EEZ Region Surv1_2022
Management authority (Country/State)	Chile Undersecretary for Fisheries and Aquaculture (SUBPESCA)
Main species	Chilean anchovy (<i>Engraulis ringens</i>) Araucanian Herring (<i>Strangomera bentincki</i>)
Fishery location	FAO 87 Pacific Southeast Chile EEZ Regions V to X
Gear type(s)	Purse seine

Summary: in this section, provide any additional information about the fishery that the reviewers feel is significant to their decision. No further comments necessary

Summary of Peer Review Outcomes

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

	YES	NO	See Notes
A – Fishery Assessment			
1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	X		
2. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?			X
3. Are the scores in the following sections accurate (i.e. do the scores reflect the evidence provided)?			
Section M - Management	X		
Category A Species			X
Category B Species			NA
Category C Species			NA
Category D Species			NA
Section F – Further Impacts	X		

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 standard, and clearly based on the evidence presented in the assessment report?
The assessment report seems to be adequate and in general, it provides the information necessary to justify the scores assigned to the different categories. Only minor comments in the respective sections.

2. Has the fishery assessment been fully completed, using the recognised MARINTRUST fishery assessment methodology and associated guidance?
Yes, the IFFO RS standard has been adequately and clearly applied to this assessment.

3. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?
I understand that the catch composition given in the assessment is correct, based on the referenced report. However, I find strange that no other species are caught in this “very clean” fishery. What about jack mackerel? (which was included in the initial assessment report). If you look at the table shown in A1.1 the amount of jack mackerel caught in the area is huge. If the assessed fishery does not catch that species, it should be explained somewhere.

3M. Are the scores in “Section M – Management” clearly justified?

Yes, I consider that the information provided is adequate to support the score. A management plan for Chilean anchovy and Araucanian herring (Chilean regions V-X) has been officially adopted. Sections M1 and M2 have not changed from last year report. So, no further comments necessary.

3A. Are the “Category A Species” scores clearly justified?

Yes, the information provided is very clear and adequate to support the scores given. Some comments though.

Chilean anchovy

A.3.2 The table below from IFOP 2018 shows BACs and landings for anchoveta in the area. It seems that the BACs have been regularly exceeded in recent years. It seems that it is due to the CCT-PP keeps the “Statu quo” when the data provided by the IFOP during the intra-annual reviews indicates that the stock is not so good as it was expected during the first assessment (which is normally undertaken at the end of the previous year). It seems that once the fishery has started is difficult to make cuts. So, it seems that the process of setting BACs is not so effective. Do you have any more recent information about this particular?

Año	CBA inicial	CBA 1era revisión	CBA 2da revisión	Desembarques	Diferencia entre desembarque y CBA
2014	42.200 t.	“Statu quo” 42.200 t.	-	56.842 t.	1,35 veces la CBA
2015	34.400 t.	“Statu quo” (34.400 t.)	“Statu quo” (34.400 t.)	63.168 t.	1,84 veces la CBA
2016	Statu quo (34.400 t.)	39.900 t.	“Statu quo” (39.900 t.)	71.985 t.	1,80 veces la CBA
2017	58.400 t.	“Statu quo” (58.400 t.)	“Statu quo” (58.400 t.)	55.709 t. (preliminar)	0.95 veces la CBA
2018	49.440 t.	-	-		

Reference: IFOP 2018. INFORME 2 DE ESTATUS. Convenio de Desempeño 2017. “Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales, año 2018 en anchoveta V-X regiones”. Anchoveta V-X regiones, 2018. SUBSECRETARÍA DE ECONOMÍA Y EMT / Marzo 2018.

A4.1 The anchoveta stock is over the MSY (Biomass is 31% above the BMSY and Fishing Mortality a 16% below the FMSY).

Araucanian herring

A2.2 Some reports for similar species in the area seem to suggest that these reference points are not precautionary enough for the role that these species have in the ecosystem (see my comment in section F).

Reference: Neira S, Arancibia H, Barros M, Castro L, Cubillos L, Niklitschek E, Alarcón R. 2014.c Rol ecosistémico de sardina austral e impacto de su explotación en la sustentabilidad de otras especies de interés comercial. Informe Final Proyecto FIP 2012- 15(agosto). Universidad de Concepción, 242 pp + Anexos. Available at : http://www.subpesca.cl/fipa/613/articles-89322_informe_final.pdf”.

A.4.1 I think this requirement needs to be further developed here. Which is the biomass limit for the stock? (I know you included that information previously, but it would be good to have it here as well).

Also, the assessor indicates: “the biomass is above limit reference points and a fall below the limit reference point would result in fishery closure” Is that statement correct? Previously you indicated: “The Fisheries Act (LGPA) does not establish catch restrictions when stocks are below limit biomass (for social and economic reasons and to facilitate further research). Instead, a resource recovery plan must be implemented”.

The table shown in A1.1. for both species should be translated to English.

3B. Are the “Category B Species” scores clearly justified?

No Category B species identified

3C. Are the “Category C Species” scores clearly justified?

No category C species identified by the assessor

3D. Are the “Category D Species” scores clearly justified?

No Category D species identified

3F. Are the scores in “Section F – Further Impacts” clearly justified?

Section F-Further impacts has not been updated from the previous report. So, no further comments seem to be necessary.

Optional: General comments on the Peer Review Draft Report

The summary section is quite clear and provides a good overview of the fishery and the assessment process.

The initial scope details’ table indicates: “The Chilean Jack mackerel is also managed by the South Pacific Regional Fisheries Management Organisation (SPRFMO)” but I do not see Chilean jack mackerel covered anywhere in the report.

The format of table 4 needs to be corrected.

Some references in the report refer to jack mackerel, I understand they should be deleted if the species is not included in the report.