MarinTrust Standard V2

Whole fish Fishery Assessment, WF16

Anchovy (Engraulis ringens)

FAO 87, Chilean EEZ Regions XV-IV

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Table 1 Application details and summary of the assessment outcome

Application details and summary of the assessment outcome			
Name(s): Alimentos Pesqueros SPA, Arica Sur , Coquimbo, Coronel, Corral, FoodCorp Chile SA, Glaciares SA (Fiordo Austral), Graneros SA (Fiordo Austral), Iquique, Iquique Sur, Lota Protein, Mejillones, Pesquera Fiordo Austral SA, Pesquera La Portada S.A, Salmonoil SA (Fiordo Austral), San Vincente			
Country: Chile			
Email address:		**Applicant Code**	
Certification Body Details			
Name of Certification Body:		**LRQA**	
Assessor Name	**CB Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/ Re-approval**
Vineetha Aravind	Sam Peacock	3	Surveillance 2
Assessment Period	October 2023-October 2024		
Scope Details			
Management Authority (Country/State)	Chile – SUBPESCA & SERNAPESCA		
Main Species	Anchovy (*Engraulis ringens*)		
Fishery Location	Chile, Zones XV-IV		
Gear Type(s)	Purse seine		
Outcome of Assessment			
Overall Outcome	Pass		
Clauses Failed	None		
CB Peer Review Evaluation	Agree with outcome		
Fishery Assessment Peer Review Group Evaluation	Agree with outcome		
Recommendation	Pass		

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. Anchovy (*Engraulis ringens*); do not appear as Endangered or Critically Endangered on IUCN's Red List, nor does it appear in CITES; therefore, is eligible for approval for use as Marin Trust Whole-fish raw material. No major changes in the fishery have been recorded after the surveillance audit in 2022. There are no significant changes to monitoring and enforcement and no evidence of extensive non-compliance. The fishery management framework exists with commitment to sustainability. There is a strong legal basis to the FMP and it is transparent and collaborative in decision making. The impact of the fishery on the habitat is minimum. The fact that Anchovy is a major prey species of fish, mammals and sea birds is considered while setting TAC and in other fishery management policies. In 2021 the report of the scientific observer programme gave a detailed analysis of discards and by catch. The surveillance audit report 2022 has detailed this and has changed the species categorisation. As no new reports were available the present audit follows the same categorisation as in 2022 surveillance audit report. Therefore, this surveillance report considers only anchovy and jack mackerel. No other species formed more than 0.1% of landings in observed fishing sets. As in previous MT assessments, anchovy has been assessed as two separate stocks, a Northern stock and a North-Central stock. Both are subject to management relative to reference points and have been assessed under Category A. Jack mackerel is also managed relative to reference points and has been assessed under Category C. The data collection and stock assessment process for the two anchovy stocks remains largely unchanged since the previous assessment. Scientific authorities consider the Northern stock to currently be under-exploited, and the North-Central stock to be appropriately exploited. Biomass for both stocks is above the target reference point, and TACs continue to be set in line with the scientific advice. The targeted Chilean jack mackerel fishery is currently MT-approved. The South Pacific Regional Fisheries Management Organisation (SPRFMO), conducts annual stock assessment. Jack mackerel was most recently assessed in 2022 as part of the 10th annual SPRFMO Scientific Committee meeting. The stock assessment followed from a benchmark workshop held in Seattle. Stock projections are favourable, even under the most conservative stock recruitment scenarios. Biomass is projected to be above B_{MSY} in 2024, with a high likelihood. The 2022 surveillance audit updated the ETP section based on observer programme report. This is summarised in the present report. Overall, there are no changes in the situation of the fishery which would necessitate the removal of its approved status. The fishery should remain an approved source of raw materials for MT-certified marine ingredients. Note: The latest report of the Scientific Technical Committee on Small Pelagic Fisheries (SUBPESCA) for the season four was published just after this report was finalised and is available at - https://www.subpesca.cl/portal/616/articles-119535_documento.pdf It is not used in the preparation of this document.
Fishery Assessment Peer Review Comments
This surveillance assessment covers the Chilean anchovy fishery in Zones XV-IV. The peer reviewer agrees that in the absence of new catch composition data, the species categorisation from the 2022 MT surveillance assessment remains appropriate. As previously, the two anchovy stocks have been assessed against Category A, while jack mackerel has been assessed under Category C and jellyfish under Category D. The peer reviewer agrees that there do not appear to have been any substantial changes in the aspects of the fishery relevant to sections M or F since the time of the previous surveillance assessment, and the fishery continues to meet the MT requirements in those areas. At the time the MT report was drafted, no new stock assessment outcomes were available for either the North or North-Central anchovy stocks relative to the 2022 surveillance; therefore PR agrees that the most recent

information demonstrates these stocks continue to be exploited responsibly, with biomass at or above the MSY level and TACs set in line with scientific advice.

Similarly, the jack mackerel stock continues to be exploited responsibly and in line with the MT requirements. The risk-based category D assessment for jellyfish remains unchanged.

Overall the peer reviewer agrees with the conclusions of the fishery assessor, and recommends that this fishery remain approved for use as a source of raw material for MT-certified products.

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

List all Category A and B species. List approximate total percentage (%) of landings which are Category C and D species; these do not need to be individually named here

Category	Species	% landings	Outcome (Pass/Fail)	
Category A	Anchovy (*Engraulis ringens*)	>95%	A1	PASS
			A2	PASS
			A3	PASS
			A4	PASS
Category B	No Category B species			
Category C	Jack mackerel (Trachurus murphyi)	1.6%	PASS	
Category D	Jellyfish (*Scypozoa*)	2.7%	PASS	

Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category[1]	% of landings	Management	Category
Anchovy	*Engraulis ringens*	North (Zones XV-II)	Least Concern[2]	>95	Yes	A
Anchovy	*Engraulis ringens*	North-Central (Zones III & IV)	Least Concern[2]	>95	Yes	A
Jellyfish	*Scyphozoa*	N/A	No species identified	2.7	No	D
Jack mackerel	*Trachurus murphyi*	South-East Pacific	Data-Deficient[3]	1.6	Yes	C

Species categorisation rationale

The 2022 Surveillance audit used the data from the Chilean fishery observer programme for species categorisation. As no new information is available for the CB for this assessment, the assessor assumes that the catch composition is the same as in the previous assessment. The observer programme has 15.6% coverage of the industrial anchovy fishery in the North zone (XV-II). Accordingly, the main retained species were as follows:

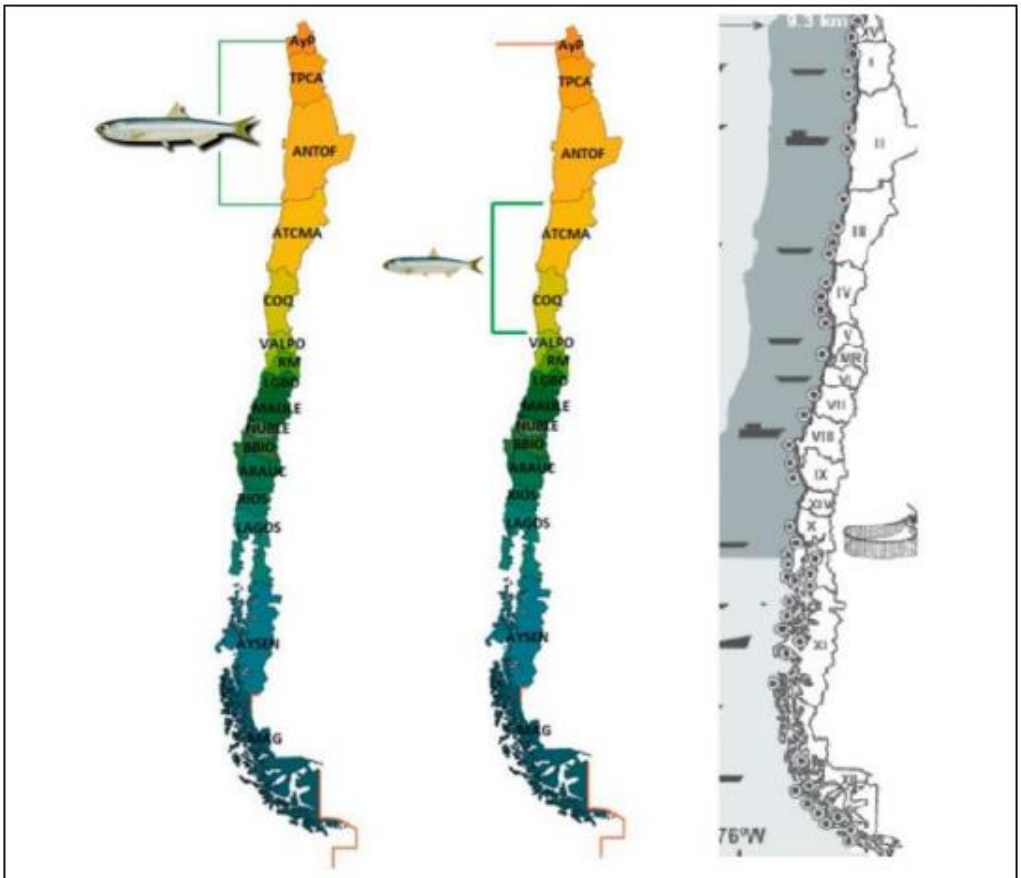
- Anchovy, *Engraulis ringens*, 95.6%
- Jellyfish, 2.7%
- Jurel (jack mackerel), *Trachurus murphyi*, 1.6%

Additional retained species which represented less than 0.1% of the catch were langostino enano (squat lobster, *Munida gregaria*) and chub mackerel (*Scomber japonicus*). Pilchard was not recorded as occurring in the catch. Therefore, the only species which are caught in quantities which require inclusion in this assessment are anchovy and jack mackerel. The term "Jellyfish" does not represent a single species but rather any species within the class Scyphozoa. However, as jellyfish are not subject to a management regime and make up a small proportion of the catch, they have been included in this assessment using the risk-based Category D approach.

There are two distinct anchovy stocks within the area covered by this assessment. The Northern stock extends between Chilean Zones XV-II, from Arica y Parinacota to Antofagasta. The North-Central stock is distributed in Zones III and IV, which are the Atacama and Coquimbo regions (see maps below). Both stocks are managed relative to reference points using annual quotas, and have therefore been assessed under Category A.

Jack mackerel is subject to an international management regime coordinated by the South Pacific Regional Fisheries Management Organisation (SPRFMO), and has therefore been assessed under Category C. The Chilean fishery targeting jack mackerel is currently MT-[2]approved.

1 https://www.iucnredlist.org/
2 https://www.iucnredlist.org/species/183775/102904317
3 https://www.iucnredlist.org/species/183965/8207652
4 FINAL REPORT: Performance of the catch and discard research and monitoring programme for bycatch in pelagic fisheries, 2020-2021. Published September 2021. https://www.ifop.cl/wpcontent/contenidos/uploads/RepositorioIfop/InformeFinal/2021/P-581168.p



Maps of Chile showing the location of the Northern anchovy stock (left)[5]; the location of the North-Central stock (middle)[5]; and the numerical administrative Zones (right)[6].

5 Status of the principle Chilean fisheries, 2021. SUBPESCA. https://www.subpesca.cl/portal/618/articles114817_recurso_1.pdf

6 Gelcich, S., Hughes, T.P., Olsson, P., Folke, C. (2010). Navigating transformations in Governance of Chilean Marine Coastal Resources. PNAS 107(39): 16749-9. https://www.researchgate.net/publication/46255495_Navigating_Transformations_in_Governance_of_Chilean_Marine_Coastal_Resources

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.

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

There have been no substantial changes in the aspects of the fishery which relate to Section M1 since the time of the 2022 surveillance audit. The information from the previous report is summarised here for convenience; please refer to the 2021 re-approval report and 2022 surveillance report for more details.

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

The organisation responsible for Fisheries Management in Chilean waters is the Subsecretariat de Pesca (Undersecretariat of Fisheries, SUBPESCA) within the Ministry of Economy, Development and Tourism (MINECON) (SUBPESCA, 2023). The Servicio Nacional de Pesca (National Fisheries Service, SERNAPESCA), supports SUBPESCA in the implementation of fisheries policy through enforcement (SERNAPESCA, 2023). 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 Jack Mackerel fishery is managed by the South Pacific Regional Fisheries Management Organisation (SPRFMO). Anchovy is not managed by SPRFMO.

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

The Instituto de Fomento Pesquero (Fisheries Development Institute, IFOP), created in 1964 under a joint agreement between the Chilean government, the FAO, and the UN Development Program. (UNDP), is a non-profit organisation that supports sustainable development of Chile's fishing sector. It is responsible for sampling stocks and carrying out annual acoustic surveys (IFOP, 2023). The 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.

M1.3 Fishery management organisations are publicly committed to sustainability

The stated mission of SUBPESCA is to "Regulate and manage fishing and aquaculture activity, through policies, regulations and management measures, under a precautionary and ecosystem approach that promotes the conservation and sustainability of hydrobiological resources for the productive development of the sector" (translated from SUBPESCA, 2023). The stated mission of IFOP is "To advise national fishery and aquaculture institutions decision making processes, through the elaboration of public value scientific and technical backgrounds for the administration and sustainability of fishery resources, aquaculture and their ecosystems" (translated from IFOP, 2023a).

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

The Ley General de Pesca y Acuicultura (General Fisheries and Aquaculture Law, LGPA), created in 1976 and adopted in 2013 for this fishery, is the legal body that manages fishery in Chile. The LGPA is a modification of the previous fisheries legislation, and includes: Commitments convened to manage the sustainable use and conservation of marine resources and 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 (TACs) 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.

M1.5 There is a consultation process through which fishery stakeholders are engaged in decision-making.
The CCT-PP and the National Fisheries Council are involved in the consultation on the development, revision, and implementation of FMPs. Management Plans set lines of action to address biological, economic, social and ecological matters. Minutes are published on the relevant websites.

M1.6 The decision-making process is transparent, with processes and results publicly available.
There is a transparent mechanism wherein all information is available on the SUBPESCA and IFOP websites, including CCT-PP proceedings and other aspects of the decision-making process. The status of each managed stocks is annually published in the memorandum "Estado de situación de las principales pesquerías Chilenas "

References

IFOP (2023). "About Us." https://www.ifop.cl/en/quienes-somos/

IFOP (2023a). "Strategic Plan." https://www.ifop.cl/en/quienes-somos/plan-estrategico/

Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/w3-article-88020.html

SERNAPESCA (2023). "What is SERNAPESCA?." http://www.sernapesca.cl/que-es-sernapesca

SUBPESCA (2013). SUBPESCA Newsletter, New General Law on Fisheries and Aquaculture, No 20,657. https://www.subpesca.cl/portal/617/articles-60001_recurso_1.pdf

SUBPESCA (2023). "About the Undersecretariat." https://www.subpesca.cl/portal/616/w3-propertyvalue-538.html

SUBPESCA (2023a). "Scientific Committee on Small Pelagic Fisheries." https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html

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.	PASS
	M2.2	There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken.	PASS
	M2.3	There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing.	PASS
	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.	PASS
		Clause outcome:	PASS

There have been no substantial changes in the aspects of the fishery which relate to Section M2 since the time of the 2022 surveillance audit. The information from the previous report is summarised here for convenience; please refer to the 2021 re-approval report and 2022 surveillance report for more details.

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

In Chile's EEZ compliance with regulations is monitored mainly by SERNAPESCA. They carry out inspections, implements surveillance mechanisms and enforces compliance. They collect information and manage records related to fisheries. The Chilean Navy also patrols the EEZ and ensures that natural resources are protected. The periodic observer programme collects information on other resources harvested along with target species.

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 fines, suspension or revocation of fishing licence, and confiscation of catch and/or gear. The LGPA also details the range of offences for which these sanctions can be applied. Sanctions are in place for industrial vessels landing more fish than they have quota for. Sanctions can include one or a combination of: monetary penalties; suspension of fishing licence; and revocation of licence, depending on the offense.

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

The previous assessments reported that there is no wide spread non-compliance in the fishery and there is no substantial evidence of IUU fishing. This assessment did not receive any new reference to infer otherwise.

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.

Vessel monitoring system (VMS) is mandatory in industrial vessels and form 2020 onwards video camera monitoring system has been installed on the entire fleet. SERNAPESCA analyses these recorded images with a coverage of 13% in each fleet. It also carries out audits of capture fisheries, implementing surveillance and control of compliance. In addition, an on-board observer programme with approximately 16% coverage in the industrial fleet is also present.

References

SUBPESCA 2023. Estado de la situación de las principales pesquerías chilenas, 2022. https://www.subpesca.cl/portal/618/w3-article-117812.html

SERNAPESCA. 2023. "What is SERNAPESCA?" http://www.sernapesca.cl/que-es-sernapesca

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		**Anchovy: North Stock and North-Central Stock**	
A1	**Data Collection - Minimum Requirements**		
	A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	PASS
	A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	PASS
		Clause outcome:	PASS

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

Fishery landings data are collected through mandatory logbooks, port sampling of landings (SERNAPESCA Inspectors) and observer reports (IFOP directed). Fishery removals for both anchovy stocks are known, and A1.1 is met.

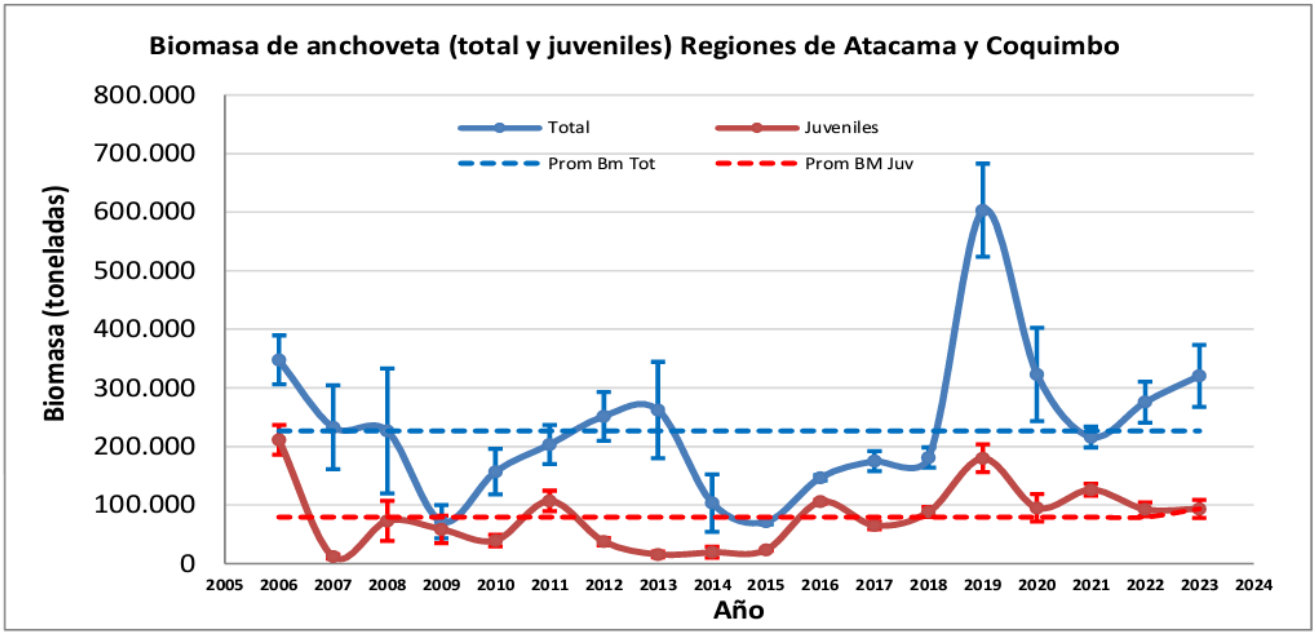


Fig: Estimated biomass series of anchovy, Atacama, and Coquimbo Regions (North Central stock). (SUBPESCA 2023)

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

Data collected through observer programme and acoustic surveys are used for stock assessments. IFOP has developed a Monitoring Program for the Main Pelagic fisheries in the north. Its main objective is to analyse and report comprehensive and timely performance of the variables and indicators of the main pelagic fish resources in the northern zone and their fishing activity, including ecosystem aspects associated and available scientific information, based on a scientifically validated monitoring system and with quality assurance standards. The Instituto de Investigación Pesquera del Norte (INPESNOR) conducts acoustic surveys, the data of which is used to estimate current biomass levels and likely future biomass through estimation of recruitment rates. (SUBPESCA 2023c)

References

SUBPESCA 2023b. Estado de la situación de las principales pesquerías chilenas, 2022. https://www.subpesca.cl/portal/618/w3-article-117812.html

SUBPESCA 2023c. Comité Cientifico Técnico de Pesquerias de Pequeños Pelágicos, Informe Tecnico No 04/2023. https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#collapse04

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.	PASS
	A2.2	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	PASS
	A2.3	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	PASS
	A2.4	The assessment is subject to internal or external peer review.	PASS
	A2.5	The assessment is made publicly available.	PASS
		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.

IFOP using information from scientific surveys conducts stock assessments twice every year. Northern anchovy stock is distributed in both Chilean and Peruvian waters. The assessment model considers fishery and biological data from Chile and Peru. Biomass and fishing mortality reference points are dynamic and are recalculated annually. A Joint Peru- Chile assessment workshop conducted periodically brings together the data from IFOP and IMARPE (Institute of the Sea, Peru). Stock assessments are conducted more frequently than once every three years and so A2.1 is met.

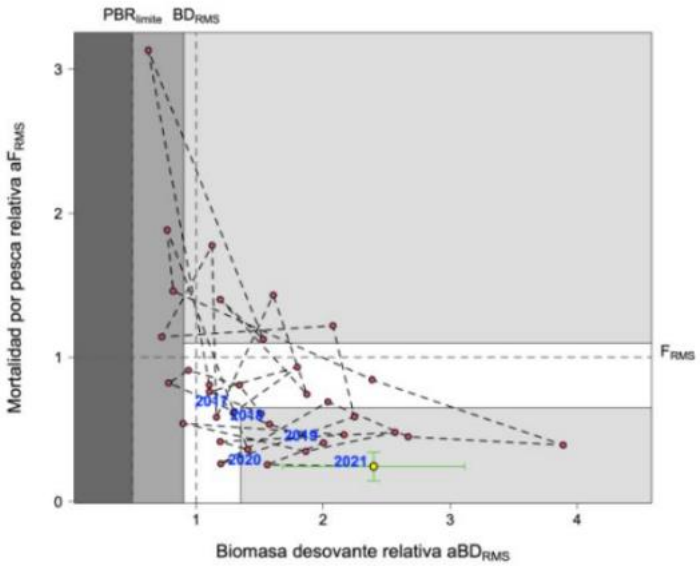
A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.

Stock assessment indicates the stock health relative to dynamic reference points. The most recent status of the fishery corresponds to the year 2021 with complete information and was established in the Technical Report of the sixth session of the year 2022 of the Scientific Technical Committee on Small Pelagic Fisheries (https://www.subpesca.cl/; CCT-PP). The status of the year 2022 with complete information will be established by the CCT-PP in the sixth ordinary session of 2023.

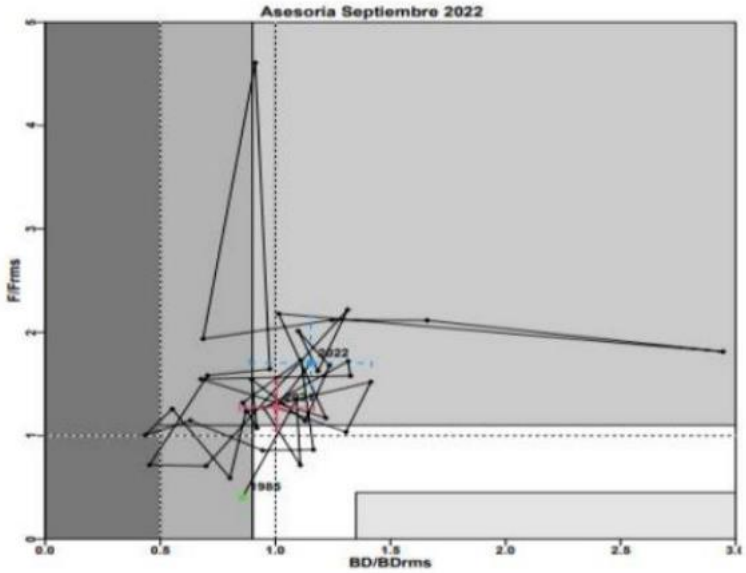
Accordingly, the most recent stock assessment assigned the following reference points (SUBPESCA 2023b):

• Northern stock: proxy FMSY (F55% BDPR) = 0.86; proxy BMSY (55% BDPR (50%B0)) = 647,000t; Blim (25% b0) = 323,500t.

• North-Central stock: proxy FMSY (F60% BDPR) = 0.84; proxy BMSY (60% BDPR (55%B0)) = 52,000t; Blim (27.5% b0) = 26,000t.



Current and historical status of the Northern anchovy stock. X-axis indicates biomass relative to reference points; y-axis indicates fishing mortality relative to reference point. Yellow dot is the estimated status in 2021, with green bars indicating 95% confidence intervals (SUBPESCA 2023b)



Current and historical status of the North-Central anchovy stock. X-axis indicates biomass relative to reference points; y-axis indicates fishing mortality relative to reference point. Red dot is the estimated status in 2021, with red bars indicating 95% confidence intervals (SUBPESCA 2023b)

A2.3 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.

A recommendation on quota for the upcoming season is made by the CCT-PP, based on the outcomes of the stock assessment, for each anchovy stock.

Biologically Acceptable Catch Range 2023 (Northern stock): The Committee recommended a total CBA tending towards MSY equivalent to 757,100 t. Consequently, in accordance with what was agreed in Minutes 04 -2022, discounting this CBA a discard

of 1.56% for the first semester and 0.97% for the second semester, respectively, a maximum CBA of 749,700 t is determined, so the biologically acceptable TAC is between 599,760 and 749,700 t.

Biologically Acceptable Catch Range 2023 (North Central stock): The Committee recommends a total CBA that tends towards the MSY equivalent of 36,087 t. Consequently, discounting the 2.9% discard, a maximum CBA of 35,040 t is determined, so the biologically acceptable TAC is 28,032 and 35,040 t.

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

All stock assessments continue to be subject to internal peer review by IFOP and are also peer reviewed annually by the CCT-PP. CCT-PP recommendations are a result of a collaborative process emerging from the Committee's meetings. Both IFOP and SUBPESCA also commission external peer reviews for their publications. The Chilean authorities invite international experts to evaluate their setting of biological reference points within the MSY framework.

A2.5 The assessment is made publicly available.

IFOP and SUBPESCA websites publish reports on stock assessment and advices on TAC. ACTAS published on SUBPESCA's website give summaries of the stock assessment process and confirm final decisions on TACs. IFOP monthly bulletin (INFORMES) gives updates on stock-recruitment and spawning. The bulletin also gives details of closed seasons by area and general information on current stock status.

All information required to update the re-approval and complete this assessment was available online without needing to be requested.

References

SUBPESCA 2023b. Estado de la situación de las principales pesquerías chilenas, 2022. https://www.subpesca.cl/portal/618/w3-article-117812.html

SUBPESCA 2023c. Comité Cientifico Técnico de Pesquerias de Pequeños Pelágicos, Informe Tecnico No 04/2023. https://www.subpesca.cl/portal/616/articles-119536_documento.pdf

Links:
https://www.subpesca.cl/; CCT-PP

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.	PASS
	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.	PASS
	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).	PASS
		Clause outcome:	PASS

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

The quota system remains the same from the previous Surveillance audit. Fishing mortality is restricted by annual quota, based on the recommendations of the CCT-PP. TAC is allotted on three categories - artisanal, industrial and research. The TAC is set

up every year following scientist recommendations and data from historical series of data and biannual surveys. TACs are normally given for two fishing seasons, but can be modified based on the result of in-year fishery and acoustic surveys.

By Chilean Law (LGPA Law No. 20.657) recommendations are provided as a range in such a way that the minimum value is equal to maximum value minus 20%. Government organises workshops on best fishing practices by reducing bycatch and minimising discards. When large quantities of juveniles are detected in the catch, temporary closures are ordered which may extend for one week to fifteen days or more depending on the proportion of juveniles in the catch. Thus, there is a mechanism to control fishing induced pressure on the stock and maintain the stock at MSY.

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 is divided into commercial and research quotas. TACs 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 is modified according to the results of acoustic surveys. According to the recommendations based on stock status TACs can be changed during the season. The TAC recommended for 2023 is as follows: -

For the Northern stock: 599,760 and 749,700 t.

For the North-Central stock: 28,032 and 35,040 t

These are the same figures as the previous surveillance and refer to the season which has just been completed.

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).

This has not changed after the surveillance audit in 2022. B_{lim}/proxy is used to direct management decisions rather than to prohibit fishery removals. The Fisheries Act (LGPA) has no provision to establish catch restrictions when the stock falls below limit reference point (due to social and economic reasons and to facilitate research). Therefore, a resource recovery plan is implemented. Management committees are engaged to design and implement a management plan thereby reducing fishing mortality at levels below or equal to FRMS. As fishery removals are controlled, reference points will not be exceeded and prohibitions are not needed.

References

SUBPESCA 2023b. Estado de la situación de las principales pesquerías chilenas, 2022. https://www.subpesca.cl/portal/618/w3-article-117812.html

SUBPESCA 2023c. Comité Cientifico Técnico de Pesquerias de Pequeños Pelágicos, Informe Tecnico No 04/2023. https://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html#collapse04

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:	PASS

		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.	
			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.

Calculations were based on biological reference points. The most recent status of the fishery corresponds to the year 2021 with complete information and was established in the Technical Report of the sixth session of the year 2022, of the Scientific Technical Committee on Small Pelagic Fisheries (https://www.subpesca.cl/; CCT-PP). The status of the year 2022 with complete information will be established by the CCT-PP in the sixth ordinary session of 2023.

For anchovy from North zone, spawning biomass is 48% above the upper BDRMS to the previous assessment and a fishing mortality equivalent to the F/FRMA (BDRMS= 1.483 and F/FRMA=1.00).

ANCHOVETA (ARICA AND PARINACOTA, TARAPACÁ AND ANTOFAGASTA REGIONS)

	x			
Fishery status	Underexploitation	Full exploitation	overexploited	Sold out

Fishery Status for the Northern anchovy stocks (SUBPESCA 2023)

Regarding anchovy from the north-central zone for the year 2022, the spawning biomass is above the BDRMS (BD/BDRMS=1.19), and therefore, with zero probability of overexploitation, while that fishing mortality is at the limit of overfishing (F/FRMSY=1.29).

ANCHOVETA (ATACAMA AND COQUIMBO REGIONS)

		x		
State the fishery	Underexploitedion	Full exploitation	Overexploitada	Sold out

Fishery Status for the North-Central anchovy stocks (SUBPESCA 2023)

As both stocks are currently estimated to have a biomass larger than the target reference point, both meet the requirements of A4.1

References

SUBPESCA 2023b. Estado de la situación de las principales pesquerías chilenas, 2022. https://www.subpesca.cl/portal/618/w3-article-117812.html

SUBPESCA 2023D. INFORME ANUAL DE GESTIÓN, FUNCIONAMIENTO Y GASTOS, AÑO 2022 COMITÉ CIENTÍFICO TÉCNICO DE PESQUERÍAS DE PEQUEÑOS PELÁGICOS. https://www.subpesca.cl/portal/616/articles-117758_documento.pdf

Links	
MarinTrust Standard clause	**1.3.2.1.4**
FAO CCRF	**7.2.1, 7.2.2 (e)**

CATEGORY B SPECIES

Category B species are those which make up greater than 5% of landings in the applicant raw material, but which are not subject to a species-specific research and management regime sufficient to pass all Category A clauses. If there are no Category B species in the fishery under assessment, this section can be deleted.

Category B species are assessed using a risk-based approach. The following process should be completed once for each Category B species.

If there are estimates of biomass (B), fishing mortality (F), and reference points

It is possible for a Category B species to have some biomass and fishing mortality data available. When sufficient information is present, the assessment team should use the following risk matrix to determine whether the species should be recommended for approval.

TABLE B(A) - F, B AND REFERENCE POINTS ARE AVAILABLE

Biomass is above MSY / target reference point	Pass	Pass	Pass	Fail	Fail
Biomass is below MSY / target reference point, but above limit reference point	Pass, but re-assess when fishery removals resume	Pass	Fail	Fail	Fail
Biomass is below limit reference point (stock is overfished)	Pass, but re-assess when fishery removals resume	Fail	Fail	Fail	Fail
Biomass is significantly below limit reference point (Recruitment impaired)	Fail	Fail	Fail	Fail	Fail

	Fishery removals are prohibited	**Fishing mortality is below MSY or target reference point**	**Fishing mortality is around MSY or target reference point, or below the long-term average**	**Fishing mortality is above the MSY or target reference point, or around the long-term average**	**Fishing mortality is above the limit reference point or above the long-term average (Stock is subject to overfishing)**

If the biomass / fishing pressure risk assessment is not possible

Initially, the resilience of each Category B species to fishing pressure should be estimated using the American Fisheries Society procedure described in Musick, J.A. (1999). This approach is used as the resilience values for many species and stocks have been estimated by FishBase and are already available online. For details of the approach, please refer to Appendix A. Determining the resilience provides a basis for estimating the risk that fishing may pose to the long-term sustainability of the stock. Table B(b) should be used to determine whether the species should be recommended for approval.

TABLE B(B) - NO REFERENCE POINTS AVAILABLE. B = CURRENT BIOMASS; B_{AV} = LONG-TERM AVERAGE BIOMASS; F = CURRENT FISHING MORTALITY; F_{AV} = LONG-TERM AVERAGE FISHING MORTALITY.

B > B_{av} and F < F_{av}	Pass	Pass	Pass	Fail
B > B_{av} and F or F_{av} unknown	Pass	Pass	Fail	Fail
B = B_{av} and F < F_{av}	Pass	Pass	Fail	Fail
B = B_{av} and F or F_{av} unknown	Pass	Fail	Fail	Fail
B > B_{av} and F > F_{av}	Pass	Fail	Fail	Fail
B < B_{av}	Fail	Fail	Fail	Fail
B unknown	Fail	Fail	Fail	Fail
Resilience	**High**	**Medium**	**Low**	**Very Low**

Assessment Results

Species Name		N/A
B1	Species Name	
	Table used (Ba, Bb)	
	Outcome	
References		
Links		
MarinTrust Standard clause		1.3.2.2, 4.1.4
FAO CCRF		7.5.1
GSSI		D.5.01

CATEGORY C SPECIES

In a whole fish assessment, Category C species are those which make up less than 5% of landings, but which are subject to a species-specific management regime. In most cases this will be because they are a commercial target in a fishery other than the one under assessment.

Clause C1 should be completed for **each** Category C species. If there are no Category C species in the fishery under assessment, this section can be deleted. Where a species fails this Clause, it may be assessed as a Category D species instead, EXCEPT if there is evidence that it is currently below the limit reference point.

Species Name		Jack Mackerel	
C1	Category C Stock Status - Minimum Requirements		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS
		Clause outcome:	PASS

C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.

Since 2013, SPRFMO conducts annual stock assessment of Jack Mackerel in the South-East Pacific. SPRFMO uses all catch data from all signatory nations (including Chile) and prepares the stock assessment. Age at maturity, natural mortality and growth function data are considered. The details of the stock assessment process, assumptions, and source data is available online (SPRFMO, 2023).

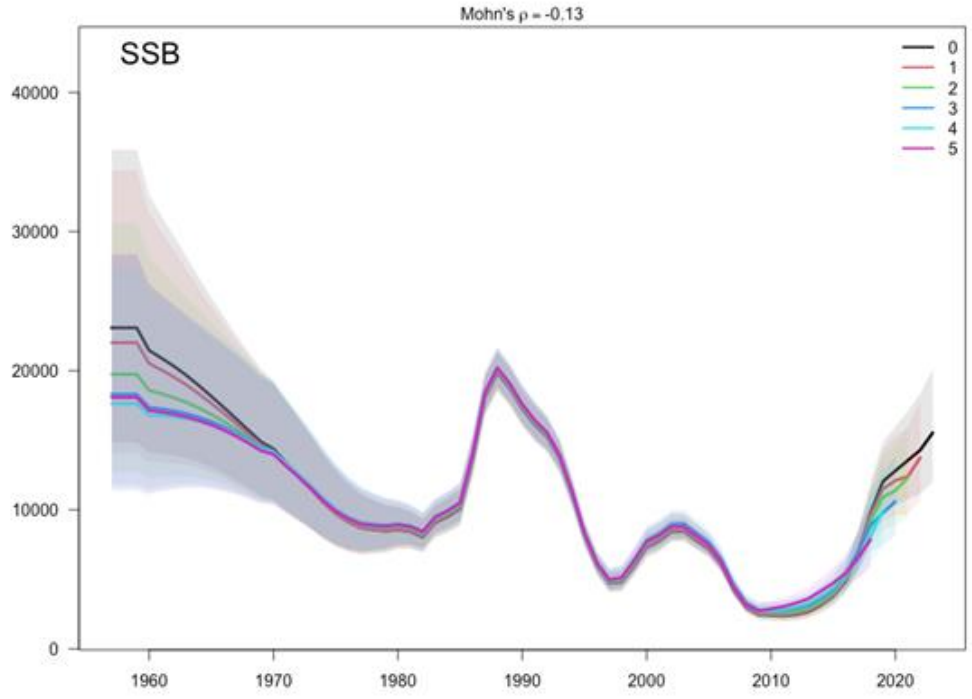
Stock assessments do not comment directly on the scale of Jack mackerel landings in the anchovy fishery relative to directed jack mackerel fishery, but it can be calculated from the total landings. The total anchovy quota (2023) for both stocks in this assessment is 784,740 t (SUBPESCA 2023). Assuming a jack mackerel bycatch rate of 1.6%, this suggests the total jack mackerel catch in the anchovy fishery will be around 12,000t. By comparison, the total international catch of jack mackerel in 2022 was estimated to be 900,000t (SPRFMO 2023).

The bycatch of jack mackerel in the anchovy fishery is included in the jack mackerel stock assessment process and is small relative to the targeted jack mackerel fishery. C1.1 is met.

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

Jack mackerel *Trachurus murphyi* was most recently assessed in 2022 as part of the 10th annual SPRFMO Scientific Committee meeting. The stock assessment followed from a benchmark workshop held in Seattle earlier. During the benchmark, scientists from around the globe met to review the input data, evaluate and revise the assessment model, and develop and interpret model diagnostics to provide guidance on the best available science for the updated stock assessment.

The assessment was produced using the Joint Jack Mackerel (JJM) statistical catch-at-age model. This model was adopted as the assessment method in 2010 and continues to be used. A technical annex has been prepared, detailing the assessment process and management advice. Using updated data inputs and indicators the model results suggest that that the jack mackerel stock status remains relatively stable since the benchmark assessment (completed in 2022) and the population trend was estimated to be increasing. Based on the assessment results, the fourth tier of the jack mackerel rebuilding plan should be applied (i.e., F_{MSY} should be used as the basis for catch advice).



Model retrospective of spawning biomass from 5 separate model runs, based on Model h1_1.02 (single-stock hypothesis), from SC10 Report Annex 8.

Stock projections are favourable, even under the most conservative stock recruitment scenarios. Biomass is projected to be above B_{MSY} in 2024, with a high likelihood. C1.2 is met.

References

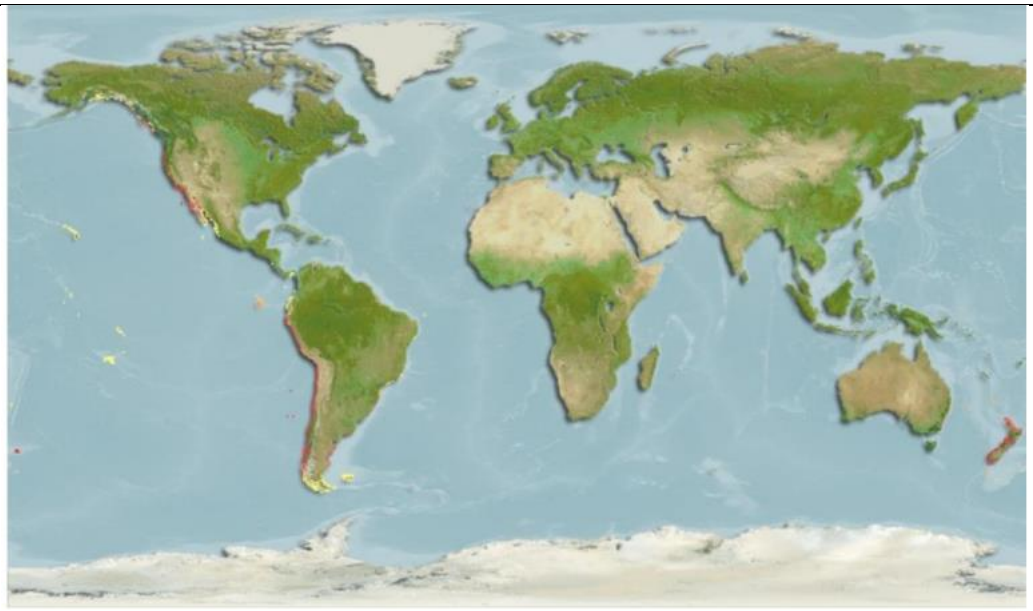
FAO 2023. Small pelagics: Lower mackerel and herring quotas. https://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/1633841/#:~:text=The%20total%20quota%20for%20jack,581%20000%20tonnes%20in%202022.

SPRFMO (2022). 2022 Scientific Committee Jack Mackerel Benchmark Workshop Report. 37 p. Wellington, New Zealand 2022. https://www.sprfmo.int/assets/Meetings/SC_WS/SCW14-Jack-Mackerel-2022/SPRFMO-SC-JM-Benchmark-Workshop-2022-Report-SCW14.pdf)

SPRFMO 2023. Jack Mackerel. Stock assessment. https://www.sprfmo.int/science/jack-mackerel/ SPRFMO Scientific Committee Meeting. Panama. 2023. https://www.sprfmo.int/assets/Meetings/02-SC/11th-SC-2023/SPRFMO-SC11-Report_rev1-17-Oct.pdf)	
Links	
MarinTrust Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

CATEGORY D SPECIES

D1	Species Name	Jellyfish	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	<18 months[2]	1
	Average maximum age (years)	<18 months[2]	1
	Fecundity (eggs/spawning)	Unknown	-
	Average maximum size (cm)	40 cm[1]	1
	Average size at maturity (cm)	<40cm[1]	1
	Reproductive strategy	Unknown, but likely broadcast spawning[2]	1
	Mean trophic level	Unknown	-
		Average Productivity Score	**1**
	Susceptibility Attribute	**Value**	**Score**
	Availability (area overlap)	<10% overlap	1
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)	High overlap	3
	Selectivity of gear type	Juveniles can escape	1
	Post-capture mortality	Dead on harvesting	3
		Average Susceptibility Score	**2**
		PSA Risk Rating (From Table D3)	**PASS**
		Compliance rating	**PASS**
	Further justification for susceptibility scoring (where relevant) *For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision* Observer data for the fishery indicates that around 2.7% of catch is jellyfish of the Class Scyphozoa. This could include many species, but none of them are well studied and subjected to management measures. For this assessment, Productivity and Susceptibility values have been estimated based on available information for the South American sea nettle, *Chrysaora plocamia*, a common jellyfish species in Chilean waters.		



Computer-generated distribution map for South-American Sea Nettle. From SeaLifeBase,

References

1: Schiariti A, Dutto M, Pereyra D, Failla Siquier G, Morandini A. Medusae (Scyphozoa and Cubozoa) from southwestern Atlantic and Subantarctic region (32-60°S, 34-70°W): species composition, spatial distribution and life history traits. Lat. Am. J. Aquat. Res.. 2018;46(2): 240-257. Available from: doi:10.3856/vol46-issue2-fulltext-1

2: https://www.thoughtco.com/sea-nettle-facts-4782495

3: https://www.sealifebase.ca/summary/Chrysaora-plocamia.html

Standard clauses 1.3.2.2

Category D species are those which make up less than 5% of landings and are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. The comparative lack of scientific information on the status of the population of the species means that a risk-assessment style approach must be taken.

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	High productivity (Low risk, score = 1)	Medium productivity (medium risk, score = 2)	Low productivity (high risk, score = 3)
Average age at maturity	<5 years	5-15 years	>15 years
Average maximum age	<10 years	10-25 years	>25 years
Fecundity	>20,000 eggs per year	100-20,000 eggs per year	<100 eggs per year
Average maximum size	<100 cm	100-300 cm	>300 cm
Average size at maturity	<40 cm	40-200 cm	>200 cm
Reproductive strategy	Broadcast spawner	Demersal egg layer	Live bearer
Mean Trophic Level	<2.75	2.75-3.25	>3.25

Susceptibility attributes	Low susceptibility (Low risk, score = 1)	Medium susceptibility (medium risk, score = 2)	High susceptibility (high risk, score = 3)
Areal overlap (availability) Overlap of the fishing effort with the species range	<10% overlap	10-30% overlap	>30% overlap
Encounterability The position of the stock/species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Low overlap with fishing gear (low encounterability).	Medium overlap with fishing gear.	High overlap with fishing gear (high encounterability). Default score for target species
Selectivity of gear type Potential of the gear to retain species	a Individuals < size at maturity are rarely caught	a Individuals < size at maturity are regularly caught.	a Individuals < size at maturity are frequently caught
	b Individuals < size at maturity can escape or avoid gear.	b Individuals < half the size at maturity can escape or avoid gear.	b Individuals < half the size at maturity are retained by gear.
Post-capture mortality (PCM) The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Evidence of majority released post-capture and survival.	Evidence of some released post-capture and survival.	Retained species or majority dead when released.

D3		Average Susceptibility Score		
		1 - 1.75	1.76 - 2.24	2.25 - 3
Average Productivity Score	1 - 1.75	PASS	PASS	PASS
	1.76 - 2.24	PASS	PASS	TABLE D4
	2.25 - 3	PASS	TABLE D4	TABLE D4

D4	Species Name		
	Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements		
	D4.1	The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.	
	D4.2	There is no substantial evidence that the fishery has a significant negative impact on the species.	
		Outcome:	

Evidence

D4.1: The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.

D4.2 There is no substantial evidence that the fishery has a significant negative impact on the species.

References

Links	
MarinTrust Standard clause	1.3.2.2, 4.1.4
FAO CCRF	7.5.1
GSSI	D.5.01

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.	PASS
	F1.2	There is no substantial evidence that the fishery has a significant negative effect on ETP species.	PASS
	F1.3	If the fishery is known to interact with ETP species, measures are in place to minimise mortality.	PASS
		Clause outcome:	PASS

The scientific observer programme report published in September 2021, provides evidence relating to the potential level of interactions between the anchovy fishery and ETP species; evidence from this report has been included in this section. Information from the reports of 2021 and 2022 is summarised here, for more details refer audit reports, 2021 & 2022.

F1.1 Interactions with ETP species are recorded.

Since 2021, with the introduction of mandatory CCTV coverage of fishing vessels within the Chilean EEZ, ETP interactions are recorded.

The 2021 re-approval noted potential interactions with Humboldt penguin (*Speniscus humboldti*, IUCN Vulnerable), Peruvian diving petrel (*Pelecanoides garnotii*, IUCN Endangered), Burmeister's porpoise (*Phocoena spinipinnis*), Guanay Cormorant (*Phalacrocorax bougainvilli*, IUCN Near Threatened), green turtle (Chelonia mydas, IUCN Endangered) and smooth hammerhead (*Sphyrna zygaena*, IUCN Vulnerable). A subsequent report detailing the findings of the scientific observer programme provides additional detail on potential ETP interactions with the fishery (IFOP, 2021). The table below shows the capture and mortality rates for bird, turtle, and marine mammal species in observed fishing sets of the anchovy purse seine fishery between 2017 and 2020. The data indicates for the species listed above that on average there were:

• 0.003 captures and 0.0003 mortalities of Humboldt penguins per fishing set.

• No captures or mortalities of Peruvian diving petrel.

• No captures or mortalities of Burmeister's porpoise.

• 0.13 captures and 0.13 mortalities of Guanay cormorant per fishing set.

• 0.001 captures and 0 mortalities of green turtles per fishing set.

• Shark bycatch is considered in a different section of the report, which indicated no captures or mortalities of smooth hammerhead.

The species with the highest rates of mortality were fardela negra (sooty shearwater, *Ardenna grisea*, IUCN Near Threatened, 0.12 mortalities per fishing set) and cormorant Guanay (Guanay cormorant, *Phalacrocorax bouganvilli*, IUCN Near Threatened, 0.13 mortalities per fishing set). The species with the highest rate of capture was the lobo marino comun (South American sealion, *Otaria flavescens*, IUCN Least Concern), which had 1.33 captures per fishing set. However, the vast majority were released alive and the mortality rate was 0.003 per fishing set.

The IFOP report also includes a discussion of the self-reported ETP interactions, noting that between 2017 and 2020 the northern anchovy fleet returned 23,417 forms, of which 4,128 included records of bird, mammal or turtle bycatch. This bycatch totalled 23,343 individuals, of which 82% were mammals, 17% seabirds and 1% turtles. Incidental mortality was 5.6% of the total number of captured animals, of which 88% were birds, primarily shearwaters (IFOP, 2021). A detailed table is given in surveillance audit, 2022 regarding the catch and incidental mortality of species in the Anchovy industrial purse seine fishery in the North Zone (i.e., Regions XV-II).

F1.2 There is no substantial evidence that the fishery has a significant negative effect on ETP species.

The 2021 re-approval and 2022 surveillance audit concluded that there was no substantial evidence that the fishery has a significant negative effect on ETP species. No new evidence was encountered during this surveillance assessment to change this conclusion.

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

Even though, the interactions with ETP species are negligible, measures are in place to minimise mortality. A software onboard registers incidental fishing mortality by industrial fleets and there are on-board protocols for the treatment and release of ETP captures; training programmes covering these protocols and other aspects of bycatch minimisation for crews; and increased coverage of on-board observers.

References

IFOP (2021). FINAL REPORT: Performance of the catch and discard research and monitoring programme for bycatch in pelagic fisheries, 2020-2021. Published September 2021.
https://www.ifop.cl/wpcontent/contenidos/uploads/RepositorioIfop/InformeFinal/2021/P-581168.pdf

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

F2	**Impacts on Habitats - Minimum Requirements**		
	F2.1	Potential habitat interactions are considered in the management decision-making process.	PASS
	F2.2	There is no substantial evidence that the fishery has a significant negative impact on physical habitats.	PASS
	F2.3	If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.	PASS
		Clause outcome:	PASS

The previous reports on this fishery, re-approval audit, 2021 and surveillance 2022, has established that purse seine gear has minimal impact on habitat. The information from the previous report is summarised here for convenience; please refer to the previous reports for more details.

F2.1 Potential habitat interactions are considered in the management decision-making process.

Interaction of purse seine nets with the habitat is very low, yet the government has considered the impact of fisheries on seabed while formulating management policies. There are MPAs and it is closely monitored by CCT-PP. Utilising VMS data, survey data, observer programme findings and fishery-dependent information, vulnerable areas are defined and protected.

F2.2 There is no substantial evidence that the fishery has a significant negative impact on physical habitats.

Interaction of purse seine nets with the habitat is very low. No evidence was presented during this assessment to say that the fishery has any negative impacts on physical habitats.

F2.3 If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.

The purse seine gear is known not to interact with the bottom of the sea. In spite of this there are mechanisms like protected areas to protect sensitive habitats.

References

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

There have been no substantial changes in the aspects of the fishery which relate to Section F3 since the time of the 2021 reapproval and surveillance audit, 2022. The information from the previous reports is summarised here for convenience; please refer to the original reports for more details.

F3.1 The broader ecosystem within which the fishery occurs is considered during the management decision-making process.

Ecosystem components are considered during the decision-making process. Annual closures occur to protect the anchovy spawning-stock biomass and juveniles. Closure locations are decided based on data from monitoring of the stock size and other biological indicators. A five-mile artisanal-exclusive zone provides protection for spawners and other species from industrial exploitation. Additionally, environmental factors (like the Chilean upwelling ecosystems -El Niño and La Niña) have a strong influence over recruitment and other aspects of stock management, and are considered extensively during the stock assessment process.

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

The previous audit reports concluded that there was no substantial evidence that the fishery had a significant negative impact on marine ecosystems, and no new evidence has been encountered during the completion of this surveillance assessment.

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.

Anchovy is a low trophic level species and is an important prey species for many predators. Ecosystem modelling studies helps to study this and is factored in to quota recommendations. The LGPA introduced a requirement to implement an ecosystem-based approach to fisheries management, and while there remain challenges to fully implementing this approach, the stock assessment models currently used already incorporates ecosystem and predator considerations.

References

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.

Status of the principle Chilean fisheries, 2022. SUBPESCA.

https://www.subpesca.cl/portal/618/articles-117812_recurso_1.pdf

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.

Appendix A - Determining Resilience Ratings

The assessment of Category B species described in this assessment report template utilises a resilience rating system suggested by the American Fisheries Society. This approach was chosen because it is also used by FishBase, and so the resilience ratings for many thousands of species are freely available online. As described by FishBase, the following is the process used to arrive at the resilience ratings:

"*The American Fisheries Society (AFS) has suggested values for several biological parameters that allow classification of a fish population or species into categories of high, medium, low and very low resilience or productivity (Musick 1999). If no reliable estimate of r_m (see below) is available, the assignment is to the lowest category for which any of the available parameters fits. For each of these categories, AFS has suggested thresholds for decline over the longer of 10 years or three generations. If an observed decline measured in biomass or numbers of mature individuals exceeds the indicated threshold value, the population or species is considered vulnerable to extinction unless explicitly shown otherwise. If one sex strongly limits the reproductive capacity of the species or population, then only the decline in the limiting sex should be considered. We decided to restrict the automatic assignment of resilience categories in the Key Facts page to values of K, t_m and t_{max} and those records of fecundity estimates that referred to minimum number of eggs or pups per female per year, assuming that these were equivalent to average fecundity at first maturity (Musick 1999). Note that many small fishes may spawn several times per year (we exclude these for the time being) and large live bearers such as the coelacanth may have gestation periods of more than one year (we corrected fecundity estimates for those cases reported in the literature). Also, we excluded resilience estimates based on r_m (see below) as we are not yet confident with the reliability of the current method for estimating rm. If users have independent r_m or fecundity estimates, they can refer to Table 1 for using this information*."

Parameter	High	Medium	Low	Very low
Threshold	0.99	0.95	0.85	0.70
r_{max} (1/year)	> 0.5	0.16 - 0.50	0.05 - 0.15	< 0.05
K (1/year)	> 0.3	0.16 - 0.30	0.05 - 0.15	< 0.05
Fecundity (1/year)	> 10,000	100 - 1000	10 - 100	< 10
t_m (years)	< 1	2 - 4	5 - 10	> 10
t_{max} (years)	1 - 3	4 - 10	11 - 30	> 30

[Taken from the FishBase manual, "Estimation of Life-History Key Facts", http://www.fishbase.us/manual/English/key%20facts.htm#resilience]

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	Anchoveta | Chile | FAO 87 Chilean EEZ Regions XV-IV
Management authority (Country/State)	SUBPESCA & SERNAPESCA
Main species	1. Anchovy (*Engraulis ringens*) North (Zones XV-II) 2. Anchovy (*Engraulis ringens*) North-Central (Zones III & IV) 3. Jack mackerel (*Trachurus murphyi*)
Fishery location	Area FAO 87, Northern-Central Peruvian stock
Gear type(s)	Purse seine
Overall recommendation. (Approve/ Fail)	Approve

Summary: in this section, provide any additional information about the fishery that the reviewers feel is significant to their decision.
The assessment is comprehensive. Not a lot of new information have been added due to different circumstances. Therefore, only minor comments included for the relevant sections. In the assessment determination a note is included: "*Note: The latest report of the Scientific Technical Committee on Small Pelagic Fisheries (SUBPESCA) for the season four was published just after this report was finalised and is available at -https://www.subpesca.cl/portal/616/articles-119535_documento.pdf* *It is not used in the preparation of this document*". But I do not read anything in that document relevant for this assessment, as it talks about other species not included here. So, I would recommend deleting that note. Just as a general comment, I would say that if no new stock assessment was in place at the time of this surveillance (and in this case, for the anchoveta stocks, assessments are published every year), it would be make sense to delay the Surveillance a little but I understand that due to MT procedure it was not possible.
General Comments on the Draft Report provided to the peer reviewer
The SUBPESCA report was included on the recommendation of the internal peer reviewer, and we feel it is appropriate to keep this included.

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	X		
Category D Species	X		
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 is adequate, it provides the information necessary to justify the scores assigned to the different categories.
Certification body response
Thank you.

2. Has the fishery assessment been fully completed, using the recognised MARINTRUST fishery assessment methodology and associated guidance?
Yes, the Marintrust fishery assessment methodology and associated guidance has been adequately and clearly applied to this assessment.
Certification body response
Thank you.

3. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?
Yes. The information provided explains clearly the data used and the species added (only one species, jellyfish added). It is only unclear to me if the term "jellyfish" is made of several species (we do not which of them) if it would be added as a single category. Category A, C and D species are identified in the catch.
Certification body response
Thank you, "Jellyfish" does not represent a single species but rather any species within the class Scyphozoa.

3M. Are the scores in "Section M – Management" clearly justified?	
Information has not changed for M1 and M2 since the last surveillance audit, and the previous information has been only summarised. Information included seems to be adequate to justify the scores given.	
Certification body response	
Thank you.	

3A. Are the "Category A Species" scores clearly justified?
Yes. The information provided is up-to-date and adequate. Both stocks are presented in the same table which in this case seems to make sense. No issues identified. Only in A2.1 a "u" is missing in "A Joint Per- Chile assessment workshop conducted periodically". And a question about that, how periodically is that?
Certification body response
Thank you.

3B. Are the "Category B Species" scores clearly justified?
No category B species identified in the fishery.
Certification body response

3C. Are the "Category C Species" scores clearly justified?
No category C species identified in the fishery.
Certification body response

3D. Are the "Category D Species" scores clearly justified?
Yes, a PSA has been conducted for the two selected species identified (munida and samasa). The scores given and justifications seem to be adequate. No relevant issues found (all the species get a "pass" at the first step). My only comment is that the auditor has used footnotes to the references section for the first species but not for the second species. I would recommend to unify it.
Certification body response
Thank you.

3F. Are the scores in "Section F – Further Impacts" clearly justified?
Information has not changed since the last surveillance assessment, and it seems it has not been necessary to update the F section. Information adequate to justify the scores given.
Certification body response
Thank you.

Optional: General comments on the Peer Review Draft Report
Certification body response