MarinTrust Standard V2

Whole fish Fishery Assessment Report Template

MarinTrust Programme
Unit C, Printworks
22 Amelia Street
London
SE17 3BZ
E: standards@marin-trust.com
T: +44 2039 780 819

Table 1 Application details and summary of the assessment outcome

Application details and summary of the assessment outcome			
Name:			
Address:			
Country: Chile		**Zip:**	
Tel. No.		**Fax. No.**	
Email address:		**Applicant Code**	
Key Contact:		**Title:**	
Certification Body Details			
Name of Certification Body:			
Assessor Name	**CB Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/Re-approval**
Virginia Polonio	Sam Dignan	3	Re-Approval
Assessment Period	April 2021		

Scope Details	
Management Authority (Country/State)	Subsecretaria de Pesca (SUBPESCA) and SERNAPESCA
Main Species	*Engraulis ringens*
Fishery Location	FAO 87 Pacific Southeast, Chile EEZ Regions XV to IV
Gear Type(s)	Purse seine
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
CB Peer Review Evaluation	Agree with the assessor's determination
Fishery Assessment Peer Review Group Evaluation	Approved see Appendix
Recommendation	**APPROVED**

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 (*Engraulis ringens*)*;* 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, *Engraulis ringens*) in the XV-IV 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). In this area Chilean anchovy fisheries are divided into two management units Regions XV-II and Regions III and IV. Therefore, this report refers to Anchovy Regions XV-II and III-IV. The Subsecretaria de Pesca (Undersecretariat of Fisheries, SUBPESCA or SSP); positioned within the Chilean Ministry (MINECOM) provide 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 has been officially adopted. 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 have been conducted biannually since 1999. According to the latest assessment CCT-PP (Scientific and Technical Committee formed by IFOP and SUBPESCA 2021) confirmed that the anchovy stock (XV-II) is in full capacity of exploitation. The stock in Regions III and IV is not overfished and overfishing is not happening. Other species have been assessed as they are non-target species in the fishery and represent less than 5 % of the total catch. They have been: South American Pilchard (*Sardinops sagax*) as category C, Jack mackerel (*Trachurus murphyi*) as Category C and Chub mackerel (*Scomber japonicus*) as Category D. All of them have achieved a pass in all the clauses. ETP, habitat and ecosystems do not present important changes from the previous assessments as the fishery still operate in the same way and impacts on these components of the ecosystem are not relevant. The Global Trust assessor recommends the approval of Chilean anchovy XV-IV Engraulis ringens whole-fish South American Pilchard (*Sardinops sagax*), Jack mackerel (*Trachurus murphyi*) and Chub mackerel (*Scomber japonicus*) for the production of fishmeal and/or fish oil under the current Marin Trust Whole fish and by-product Standard (v 2.0).
Fishery Assessment Peer Review Comments
As this is an English report Biological Acceptable Catches (TACs) should be replaced throughout with Total Allowable Catches (TACs). Rationale for Clause A2.3 should be amended to clearly present the level of removals indicated as being appropriate by the most recent assessment.
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 C	South American pilchard (*Sardinops sagax*)	2	PASS	
Category C	Jack Mackerel (*Trachurus murphyi*)	2	PASS	
Category D	Chub Mackerel (*Scomber japonicus, Scomber colias*	1	PASS	

Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category[1]	% of landings	Management	Category
Anchovy	*Engraulis ringens*	FAO 87 XV – IV Regions Chile	LC	95	MINECOM SUBPESCA	A
South American pilchard	*Sardinops sagax*	FAO 87 XV – IV Regions Chile	LC	2	MINECOM SUBPESCA	C
Jack Mackerel	*Trachurus murphyi*	FAO 87 XV – IV Regions Chile	LC	2	MINECOM SUBPESCA	C
Chub Mackerel	*Scomber japonicus ~Scomber colias*	FAO 87 XV – IV Regions Chile	LC	1	MINECOM SUBPESCA	D
Species categorisation rationale						
The categorisation of the species has been done following the same approach that is was done for the re-approval and surveillance 1 in the previous years as they are no new information regarding catch composition presented to the CB for the Surveillance 2.						

[1] https://www.iucnredlist.org/

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.	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

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.
- South Pacific Regional Fisheries Management Organisation (SPRFMO):
  As a widely distributed species, international management of Chilean Jack mackerel is coordinated by the South Pacific Regional Fisheries Management Organisation (SPRFMO). Currently overall TACs are agreed by the SPRFMO with part of that under Conservation and Management Measures (CMM's) applying to international waters under SPRFMOs jurisdiction. SPRFMO also provide advice on TACs in Chilean national waters (Chilean Jack mackerel *Trachurus murphyi*) due to its (Chile's) express consent**.**

The LGPA created under the regulation Ley N 1626, 21 December 21st, 1946 is the current law that these organisations follow to manage the fisheries in Chile.

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.

M1.3 Fishery management organisations are publicly committed to sustainability

IFOP gives advice to SUBPESCA to set TACs every fishing season (where BAC = Biological Aceeptable Cathces or Total Allowable Catches (TAC), TAC is used hereafter). Overall TACs 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.

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 (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

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.

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

References

Ministerio de Economía, Fomento y Turismo MINECON http://out.easycounter.com/external/minecon.gov.cl
Subpesca http://www.subpesca.cl/portal/616/w3-channel.html
Sernapesca www.sernapesca.cl R4 IFOP https://www.ifop.cl/en/
Comité Científico de Pesquerías de Pequeños Pelágicos (CCT-PP): http://www.subpesca.cl/portal/616/w3-propertyvalue-51142.html
Law on Fisheries and Aquaculture No 20.657: http://www.subpesca.cl/normativa/605/articles-764_documento.pdf
South Pacific Regional Fisheries Management Organisation https://www.sprfmo.int

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

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.

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.

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.

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. Within the EEZ the Chilean Navy monitor an area covering approximately 4,542,990. Km^2 . SERNAPESCA makes public an annual report with the infractions registered by fleet. Further, from 2020 a videocamera control system has been installed in all the fleet operating in Chile EEZ. The recorded images are analysed by SERNAPESCA with a coverage of 13% in each fleet. This information is merged with logbook information to identify any infraction of the regulation.

References

IFOP 2021. Estado actual de las principales pesquerías chilenas, 2020.
Subpesca http://www.subpesca.cl/portal/616/w3-channel.html
Sernapesca www.sernapesca.cl R4 IFOP https://www.ifop.cl/en/
CCT-PP. 2019. Informe técnico no. 5 de la sexta sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, 16-18 Octubre 2019. 52 pp. SUBPESCA. http://www.subpesca.cl/portal/616/articles-105856_documento.pdf
SUBPESCA 2020, Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, Regiones de Arica - Parinacota y Coquimbo, año 2019.

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		***Engraulis ringens* XV – IV Regions Chile**	
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

Evidence

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). Mandatory logbooks are required for all the vessels. The figure below shows landings of the main species for this mixed pelagic fishery from 1955 to 2018. Therefore, removals are known.

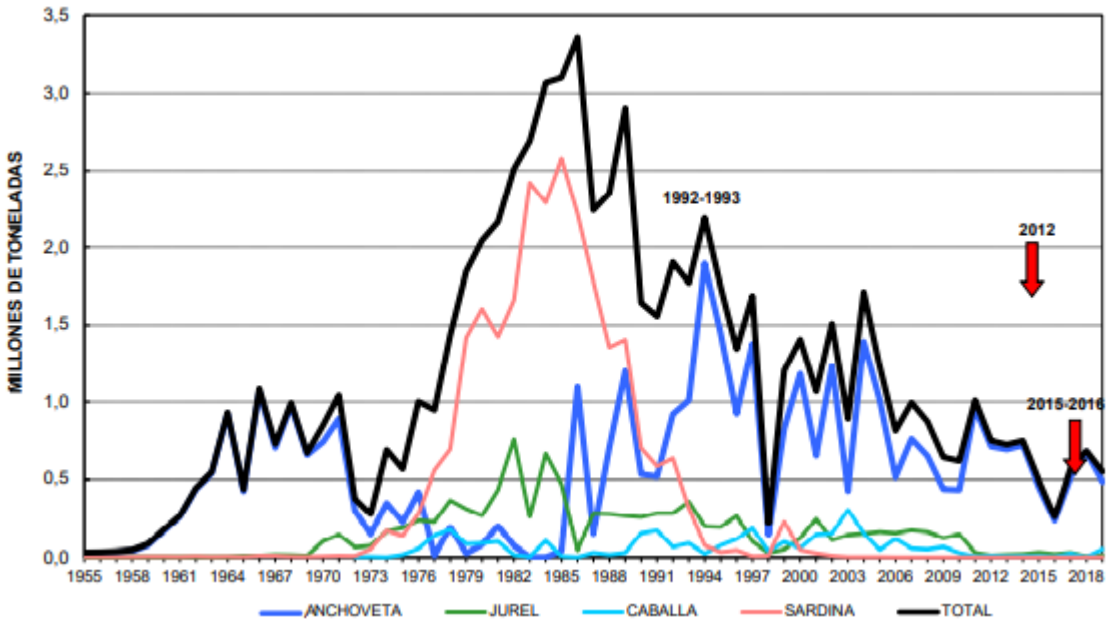

Figure 1. Landings reported in millions of tonnes for the main species in the pelagic mixed fishery where *Engraulis rigens* is caught as a part of the total composition. Source: IFOP 2020.

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

SUBPESCA mandates IFOP to develop a "Monitoring Program for the Main Pelagic fisheries in the north, which its main objective is to analyse and report comprehensive and timely performance of the variables and indicators of the main resources pelagic fish 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. Further, CORPESCA contracted Instituto de Investigación Pesquera del Norte (INPESNOR) to develop a scientific acoustic survey in the fleet operating in the north. The study was conducted in partnership with the University and it allowed characterizing and evaluate the levels and status of the anchovy

in the north of Chile, at the stage of the species called “recruitment”. The information was shared with SUBPESCA to further analyse the status of the stock.
References ▪ IMARPE (2019): Desarrollo de la pesquería de anchoveta en la región sur del Perú desde julio hasta diciembre 2018 y perspectivas de explotación para el periodo enero-junio 2019: http://www.imarpe.gob.pe/imarpe/archivos/informes/pesqueria_anchoveta_y_proyeccion2019.pdf ▪ CCT-PP. 2019. Informe técnico no. 5 de la sexta sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, 16-18 Octubre 2019. 52 pp. SUBPESCA http://www.subpesca.cl/portal/616/articles-105856_documento.pdf ▪ SUBPESCA 2020, Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, Regiones de Arica - Parinacota y Coquimbo, año 2019. ▪ IFOP 2021. Estado actual de las principales pesquerías chilenas, 2020. ▪ Subpesca http://www.subpesca.cl/portal/616/w3-channel.html ▪ CORPESCA www.corpesca.cl
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

Evidence

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.

Stock assessments are conducted by IFOP using information from scientific surveys conducted at least twice a year, in order to evaluate biomass of the stock and oceanographic conditions. IFOP's assessment model covers the entire stock, considering fishery and biological data from Chile and Peru. The biomass and fishing mortality reference points are dynamic and recalculated annually. Stock assessment conducted by IMARPE covers only the Peruvian part of the stock and do not form part of this assessment. A joint Peruvian-Chilean assessment workshop bringing together Chile's IFOP and Peru's IMARPE (Institute of the Sea) was held from 1982 to 2011 to evaluate both anchovy and sardine and restarted in 2015. The last one was held in December 2018. Therefore, a stock assessment is conducted at least once every 3 years.

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

For the management area between XV- II the Scientific Committee has shown that the MSY is defined at 576.000t. In the last hydroacoustic survey the biomass was estimated at 1,3 million tonnes well above the MSY. Therefore, the TAC for 2021 has been recommended in a range of 451,584-564,480t.

In the management area for the Regions III-IV the total biomass was estimated at 535,000.t and the recruitment was defined at 106,000t showing an increase of 40% and 53% respectively. From 2016 the biomass and recruitment have shown an increasing trend. MSY has been defined at 70,987t and TAC for 2021 is recommended in a range of 56,790-70,987t.

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

From 2005 the total catches of the species have decreased. In the recent years the catches have been reported as follows:

2017	520,000
2018	750,000
2019	667,000
2020	200,000

Therefore, in 2020 the catches have been reported at the lowest in the last 4 years and they are in the line with the stock status presented in 2021.

The assessment provides an indication of a volume of fishery removals appropriate to current stock status in the form of a recommended TAC. In the latest assessment, in the management area for the Regions III-IV the total biomass was estimated at 535,000.t and the recruitment was defined at 106,000t showing an increase of 40% and 53% respectively. From 2016 the biomass and recruitment have shown an increasing trend. MSY has been defined at 70,987t and TAC for 2021 is recommended in a range of 56,790-70,987t. Therefore, the indication of a volume of fishery removals appropriate to current stock status assessment provided in the most recent assessment is a TAC of 56,790 and 70,987 t.

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.

A2.5 The assessment is made publicly available.

Reports stock assessments and advice on TACs 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 TACs. 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.

References

CCT-PP. 2019. Informe técnico no. 5 de la sexta sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, 16-18 Octubre 2019. 52 pp. SUBPESCA: http://www.subpesca.cl/portal/616/articles-105856_documento.pdf

SUBPESCA 2020, Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, Regiones de Arica - Parinacota y Coquimbo, año 2019.

IFOP 2021. Estado actual de las principales pesquerías chilenas, 2020.

Subpesca http://www.subpesca.cl/portal/616/w3-channel.html

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

Evidence

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. TACs are divided into three categories: research, industrial and artisanal. The number of commercial landings permitted are subject to change depending on survey results. Normally TACs 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. All these strategies implemented allow control the fishing pressure and therefore there are mechanism to control F.

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. 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 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. TACS can be reviewed during the fishing seasons to ensure that the recommendations are considered.
In 2021 the TAC for region XV-III is 451,584-564,480t. For regions III-IV it has been defined at 56,790-70,987t.

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 B_{lim} 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.

References

- CCT-PP. 2019. Informe técnico no. 5 de la sexta sesión del Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, 16-18 Octubre 2019. 52 pp. SUBPESCA. http://www.subpesca.cl/portal/616/articles-105856_documento.pdf
- SUBPESCA 2020, Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, Regiones de Arica - Parinacota y Coquimbo, año 2019.
- IFOP 2021. Estado actual de las principales pesquerías chilenas, 2020.
- Subpesca http://www.subpesca.cl/portal/616/w3-channel.html

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

Evidence

Regions XV-IV

Calculations were based on biological reference points used during the previous stock assessment; catch data (XV-II) for the Northern stock to end March 2019; biomass estimates (DEPM) to end June 2018 and recruitment estimates from acoustic surveys undertaken (Northern Chile) annually. In addition, fishing mortality proxy to FMSY now corresponds to the fishing mortality that in the long term produces 55% of spawning biomass per recruit (= F55% SBPR)The last summary of stock status has shown that the stock has a biomass of 1,3 mt. Recruitment has been also higher than the previous year, calculated as 1,09 mt.

Regions III-V

Executive summaries of these assessment by CCT-PP are published and it has shown the reference points set up during the last stock assessment and management of 2020. Reference points are defined as follows:

a) BDRMS = 60%BDPR (BDPR = Spawning biomass per recruit)
b) BDlímite = 27.5%BDo
c) FRMS =F60% BDPR

In the last stock assessment, the kobe plot has shown that the stock is in the green area and therefore is above biomass reference points.

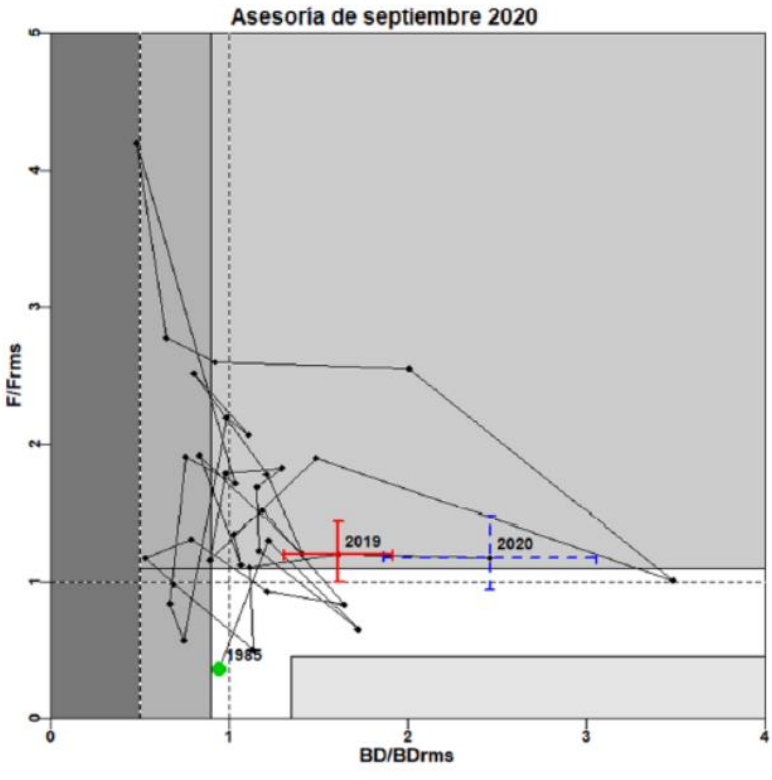

Figure 2. Kobe plot for Anchovy. 2020 IFOP
References SUBPESCA 2020, Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, Regiones de Arica - Parinacota y Coquimbo, año 2019. IFOP 2021. Estado actual de las principales pesquerías chilenas, 2020.
Links

MARINTRUST Standard clause	**1.3.2.1.4**
FAO CCRF	**7.2.1, 7.2.2 (e)**
GSSI	**D6 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	South American Pilchard, *Sardinops sagax*	
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.	Yes
	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.	Yes
	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.

Fishery removals of Sardine are included in the stock assessment programme. There is a no discard policy in place for Chilean fisheries, meaning all by-catch is landed, but only target species appear to be sampled by SERNAPESCA. Catches by regions are presented below (Figure 3).

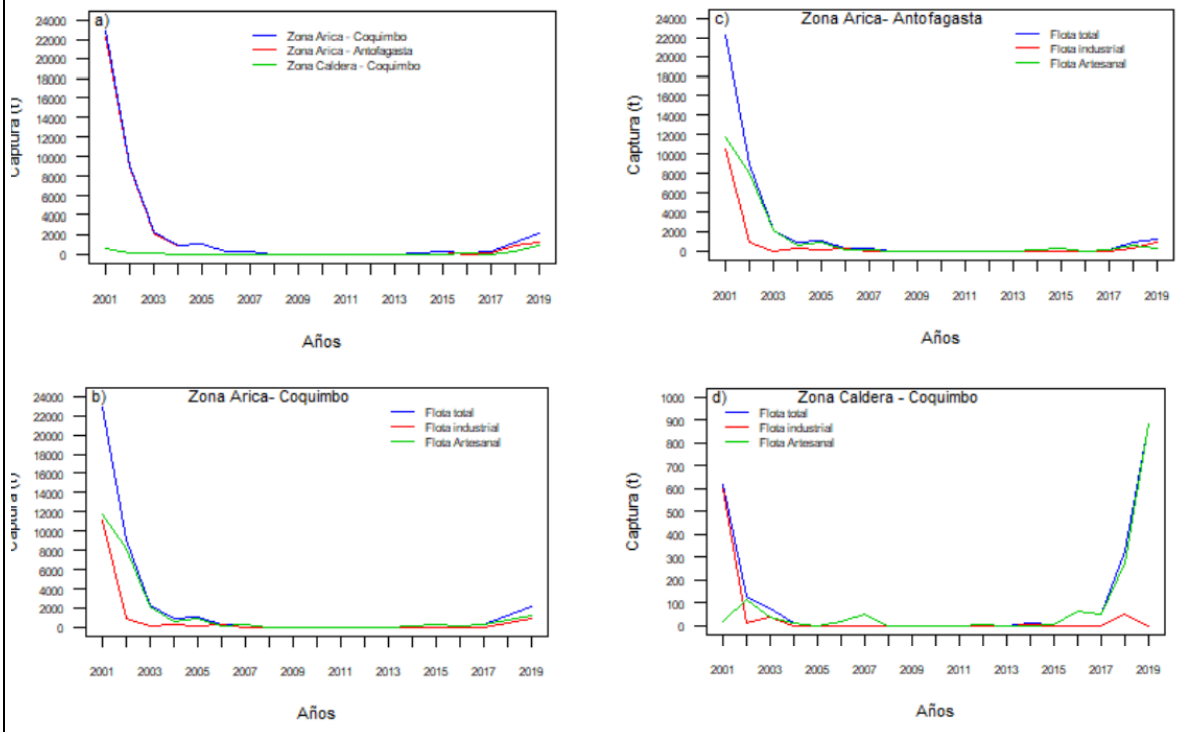

Figure 3. Evolution of annual Spanish sardine catches in the period 2001–2019 in the study area. a) Captures by zone; b) captures per fleet; c) capture by fleet, Arica-Antofagasta regions and d) capture per fleet, Caldera-Coquimbo regions.

Between 2009 and 2013, only catches of 1 t (2010) and 5t (2013). After 2014, catches fluctuated between 2 t and 879 t. Therefore, removals are considered in the stock assessment.

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.

CCT-PP (March 2020) have established a precautionary approach for 2021 (LGPA article 153). Catches can be between 4000-5000t for the northern stock and 1400-1750t for the other stock. The highest rates of exploitation of this species occurred in the early 1990s, when the stock was already declining significantly. Therefore, in the last years the stock has been considered in collapse and there is no TAC in neither region. Catches are only for exceptional cases of by-catch and therefore the species is below limits but removals by the fishery under assessment are considered by scientific authorities to be negligible.

References

SUBPESCA 2020, Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, Regiones de Arica - Parinacota y Coquimbo, año 2019.

IFOP 2021. Estado actual de las principales pesquerías chilenas, 2020.

Links	
MARINTRUST Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

Species Name	Chilean jack Mackerel (*Trachurus murphyi*)	
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.	Yes
	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.	Yes
	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.

Fisheries removals are collected by the South Pacific Regional Fisheries Management Organization conducts a joint jack mackerel assessment and since 2013, catch limits are agreed for the assessment unit area and for the Convention area, in accordance with scientific recommendations. Commercial landing data, information, and decisions from all fishing countries are integrated into the assessment process. Therefore, Fishery removals of the species in the fishery under assessment are included in the stock assessment process. The catch data for the model sum values from various countries and form four "fleets", which are intended to be consistent with the gear and general areas of fishing. The catches from each of these fleets are presented in figure below.

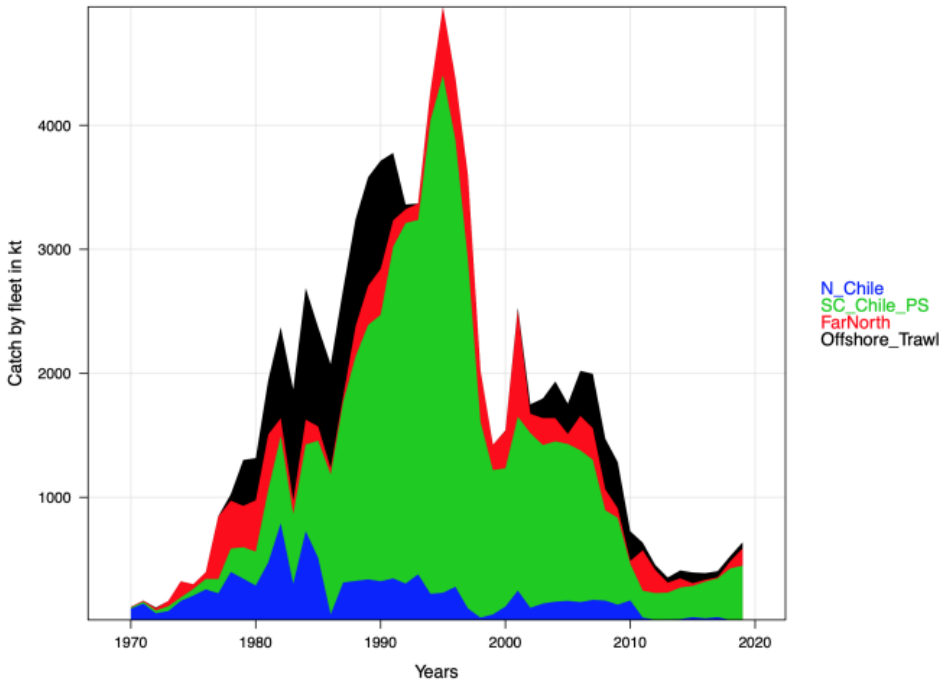

Figure 4. Catch of Jack mackerel by fleet. Green is the SC Chilean fleet, black is the offshore trawl fleet, red is the farnorth fleet, and blue in the northern Chilean fleet. SOURCE: SPRFMO-SC7

Length data are available from all major fisheries both inside and outside the EEZs. Length distributions from Chile and the older international fleet were converted into age distributions using annual Chilean age-length keys. The more recent length composition data from China and EU were converted to age compositions by applying Chilean age-length keys as compiled by quarter of the year and then aggregated. Therefore, Fishery removals of the species in the fishery under assessment are included in the stock assessment process.

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.

Reference points remain as in previous assessment. B_{MSY} is temporarily fixed at 5,500,000 tonnes and is used to determine the status of the stock; another B_{MSY} (identified as SS B_{MSY} in the SPRFMO report), dynamic and estimated annually, is at 4,328,000 tonnes and F_{MSY}, also dynamic, is at 0.12 (SPRFMO 2019a). The estimated increase in biomass to reach B_{MSY}, resulted from the fishing mortality rates decreasing in the past three years to 0.08 in 2019 and well below F_{MSY}, along with the slight recruitment improvement. Catches are preliminarily reported at 637,811 tonnes in 2019 for the whole assessment unit, rising in the last five years (SPRFMO 2019b). Therefore, the stock is above limits reference points. (Figure 5).

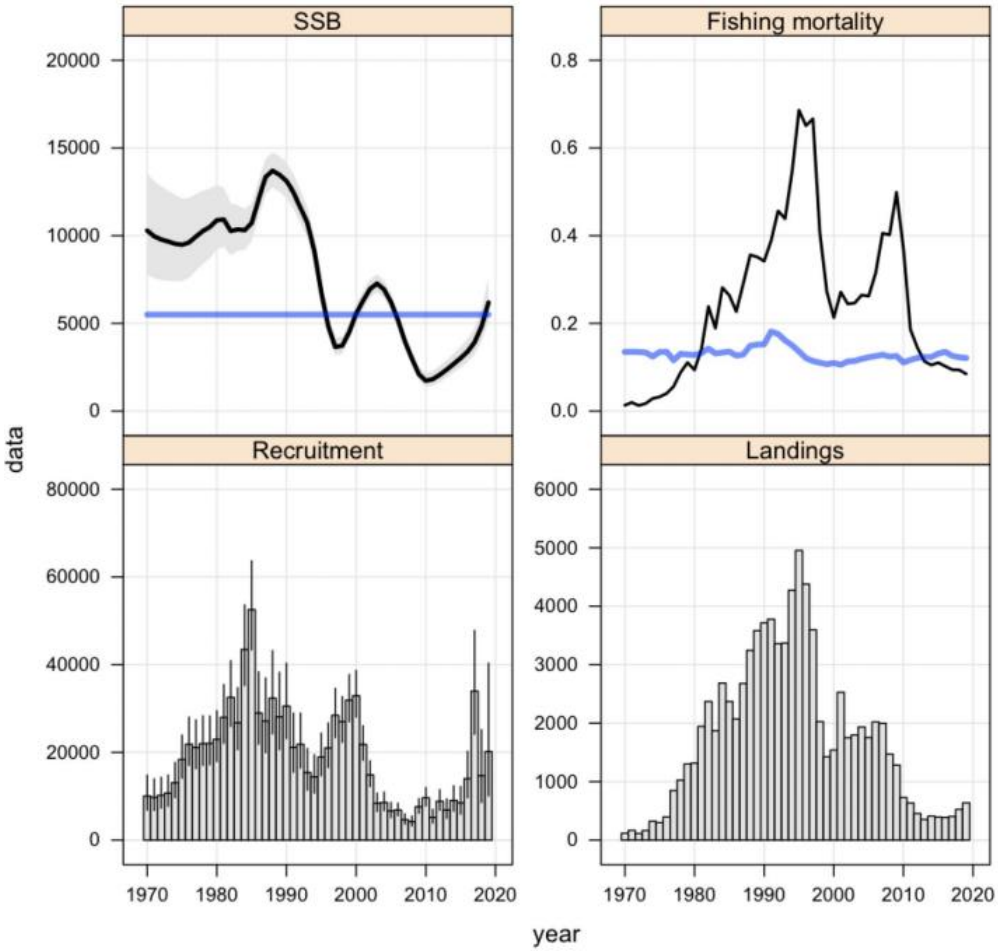

Figure 5. Model 1.00—single-stock hypothesis—summary estimates over time showing spawning biomass (kt; top left), recruitment at age 1 (millions; lower left) total fishing mortality (top right) and total catch (kt; bottom right). Blue lines represent the provisional B_{MSY} (upper left) and dynamic estimates of FMSY (upper right). SOURCE: SPRFMO-SC7

References

- SUBPESCA 2020, Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, Regiones de Arica - Parinacota y Coquimbo, año 2019.
- IFOP 2021. Estado actual de las principales pesquerías chilenas, 2020.
- SPRFMO. 2019d. 7th Scientific Committee Report - Annex 8. Jack Mackerel Technical Annex Rev1/1. SPRFMO. 7-12 October 2019 Havana, Cuba. 51 pp. SPRFMO. https://www.sprfmo.int/assets/2019-SC7/Reports/SC7-Report-Annex-8-JM-Tech-Annex-Rev1.pdf

Links	
MARINTRUST Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

CATEGORY D SPECIES

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.

D1	Species Name	Pacific Chub Mackerel, *Scomber japonicus*	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	2.0	2
	Average maximum age (years)	7.9	1
	Fecundity (eggs/spawning)	135,962 [86,616-213,422]	1
	Average maximum size (cm)	64.0	2
	Average size at maturity (cm)	22.0	1
	Reproductive strategy	Non guarders: open water/substratum egg scatterers	1
	Mean trophic level	3.4	3
		Average Productivity Score	**1.57**
	Susceptibility Attribute	**Value**	**Score**
	Overlap of adult species range with fishery	50% of the stocks occurs in area fished (Figure 1)	3
	Distribution	Not scored when overlap scored (table D2)	Not scored
	Habitat	Coastal pelagic	Not scored
	Depth range	50-200m	1
	Selectivity	Up to 4m in length	3
	Post-capture mortality	Tow 0.5 to 3 hours	2
		Average Susceptibility Score	**2.25**
		PSA Risk Rating (From Table D3)	**PASS**
		Compliance rating	**PASS**

References

Figure 1. Distribution maps for *Scomber japonicus* (Chub mackerel), with modelled year 2050 native range map based on IPCC RCP8.5 emissions scenario. www.aquamaps.org, version 10/201

- Scarponi, P., G. Coro, and P. Pagano. A collection of Aquamaps native layers in NetCDF format. Data in brief 17 (2018): 292-296.
- Fishbase Life History Data on *Scomber japonicus* Chub mackerel: https://www.fishbase.de/summary/Scomber-japonicus.html
- https://www.fishsource.org/stock_page/1647

▪ Collette, B., Acero, A., Canales Ramirez, C., Cardenas, G., Carpenter, K.E., Chang, S.-K., Di Natale, A., Fox, W., Guzman-Mora, A., Juan Jorda, M., Miyabe, N., Montano Cruz, R., Nelson, R., Salas, E., Schaefer, K., Serra, R., Sun, C., Uozumi, Y., Wang, S., Wu, J. & Yeh, S. 2011. Scomber japonicus. The IUCN Red List of Threatened Species 2011: e.T170306A6737373. https://dx.doi.org/10.2305/IUCN.UK.2011-2.RLTS.T170306A6737373.en.
Standard clauses 1.3.2.2

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	Low productivity/ High risk	Medium productivity/ Medium risk	High productivity/ Low risk
	Score 3	Score 2	Score 1
Average age at maturity (years)	>4	2 to 4	<2
Average maximum age (years)	>30	10 to 30	<10
Fecundity (eggs/spawning)	<1 000	1 000 to 10 000	>10 000
Average maximum size (cm)	>150	60 to 150	<60
Average size at maturity (cm)	>150	30 to 150	<30
Reproductive strategy	Live bearer, mouth brooder or significant parental investment	Demersal spawner "berried"	Broadcast spawner
Mean trophic level	>3.25	2.5–3.25	<2.5

Susceptibility attributes		High susceptibility/ High risk	Medium susceptibility/ Medium risk	Low susceptibility/ Low risk
		Score 3	Score 2	Score 1
Availability	1) Overlap of adult species range with fishery	>50% of stock occurs in the area fished	Between 25% and 50% of the stock occurs in the area fished	<25% of stock occurs in the area fished
	2) Distribution	Only in the country/ fishery	Limited range in the region	Throughout region/ global distribution
Encounterability	1) Habitat	Habitat preference of species make it highly likely to encounter trawl gear (e.g. demersal, muddy/sandy bottom)	Habitat preference of species make it moderately likely to encounter trawl gear (e.g. rocky bottom/reefs)	Depth or distribution of species make it unlikely to encounter trawl gear (e.g. epi-pelagic or meso-pelagic)
	2) Depth range	High overlap with trawl fishing gear (20 to 60 m depth)	Medium overlap with trawl fishing gear (10 to 20 m depth)	Low overlap with trawl fishing gear (0 to 10 m, >70 m depth)
Selectivity		Species >2 times mesh size or up to 4 m length	Species 1 to 2 times mesh size or 4 to 5 m length	Species <mesh size or >5 m length
Post capture mortality		Most dead or retained Trawl tow >3 hours	Alive after net hauled Trawl tow 0.5 to 3 hours	Released alive Trawl tow <0.5 hours

Note: Availability 2 is only used when there is no information for Availability 1; the most conservative score between Encounterability 1 and 2 is used.

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.	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

Evidence

F1.1 Interactions with ETP species are recorded.

The fishery for anchovy is known to interact with several ETP species of sea turtles, marine mammals, seabirds and sharks, most of which are released just after being caught. Among these, are the Humboldt Penguin *Spheniscus humboldti* ("Vulnerable"- IUCN), Peruvian Diving Petrel *Pelecanoides garnotii* ("Endangered"- IUCN) and Smooth Hammerhead *Sphyrna zygaena* ("Vulnerable"- IUCN).

There are also concerns about Burmeister's porpoise *Phocoena spinipinnis* whose status is unknown, the Guanay Cormorant *Phalacrocorax bougainvillii* ("Near Threatened" – IUCN) and green turtle Chelonia mydas ("Endangered"- IUCN) which feed extensively on anchovy. Interactions with any ETPs must be reported and further from January 2020 the fishing operation are recorded with the new video camera system implemented in the fleet. Available information suggests impacts from purse seines are low.

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

There is no substantial evidence that the fishery has a significant negative effect on ETP species. If the fishery is known to interact with ETP species, measures are in place to minimise mortality. In the last report of 2019 carried by CIAM, interactions with marine mammals were low.

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 EZZ 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.

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 2015-2017 time series. 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

In the last ACAP review it was accepted that even though Chile need to improve the modelling of impacts on seabirds the measures implemented for all the fisheries is working on reducing the bycatch. The Chilean NPOA states that mitigation measures agreed or to be developed will be applied in any fishery where the mortality of seabirds is > 0.05 birds/1000 hooks (Chile, 2007). In the last report carried out by CIAM in 2019, it was shown that the main interaction of the seabirds identified in the fishery was feeding while fishing with a low percentage of dead individuals.

Mortality of ETPs species were rare observed however that is happening in very low percentage and for that reason mitigation measures are in place.

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

References

- SPRFMO HABITAT MONITORING WORKING GROUP 2019 Report 2pp: https://www.sprfmo.int/assets/Fisheries/Habitat-Monitoring-WG/2019/30-Apr-2019-HMWG-meetingreport-with-participants1.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://dx.doi.org/10.2305/IUCN.UK.2010-3.RLTS.T183775A8174811.en.
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- Di Dario, F. & Williams, J. 2017. Strangomera bentincki. The IUCN Red List of Threatened Species 2017: e.T98841657A98887036. https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T98841657A98887036.en.
- Plan de Acción Nacional de Chile para mitigar efectos de la pesca de palangre sobre Aves Marinas (PAN-AM) (FIP 2003–21: Informe Final) Chile Fondo Investagacion Pesquera & Universidad de Austral de Chile (2007).
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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.

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.	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

Evidence

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.

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 × 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 interaction with these areas are very rare.

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.

References

- SPRFMO HABITAT MONITORING WORKING GROUP 2019 Report 2pp https://www.sprfmo.int/assets/Fisheries/Habitat-Monitoring-WG/2019/30-Apr-2019-HMWG-meetingreport-with-participants1.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.
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- Di Dario, F. & Williams, J. 2017. Strangomera bentincki. The IUCN Red List of Threatened Species 2017: e.T98841657A98887036. https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T98841657A98887036.en.
- Plan de Acción Nacional de Chile para mitigar efectos de la pesca de palangre sobre Aves Marinas (PAN-AM) (FIP 2003–21: Informe Final) Chile Fondo Investagacion Pesquera & Universidad de Austral de Chile (2007).

▪ Porobic, J., E. A. Fulton, S. Frusher, C. Parada, M. Haward, B. Ernst, and D. Stram. 2018. Implementing Ecosystem-based Fisheries Management: Lessons from Chile's experience. Marine Policy 97:82-90. ▪ 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.	
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

Evidence

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 regions XV-IV 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 Chile has implemented five marine reserves (see below, figure 5) 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.

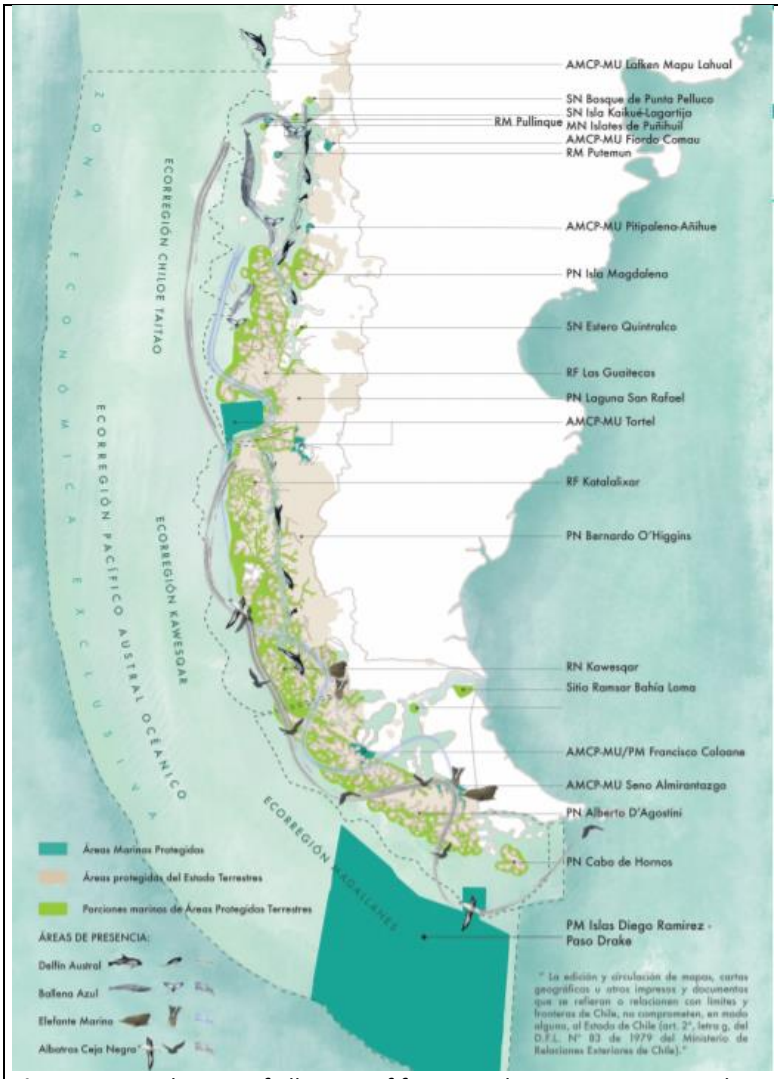

Figure 5. Distribution of all types of figure under Marine Protected Areas in Chile. Source: Wild Conservation society and Waitt Foundation under the project *Creación de una red de áreas marinas protegidas en la Patagonia* – Chile 2019.

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. TACs 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 TACs 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 TACs 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.

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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)

Appendix

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	*Chilean anchovy Engraulis ringens*
Management authority (Country/State)	Subsecretaria de Pesca (SUBPESCA) and SERNAPESCA
Main species	*Engraulis ringens*
Fishery location	FAO 87 Pacific Southeast, Chile EEZ Regions XV to IV
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.

Although in Chile IFOP is performing assessments on the shared stock without using IMARPE's (Peru) analysis for the shared stock, it has been agreed by both governments that in 2021 they will be nominated five joint working groups acting under a binational coordination committee; one of these groups will be devoted to the joint assessment of anchovy.

Chile has committed important resources through Subpesca and Sernapesca to enable the use of logbooks and cameras to record interactions with ETP species (among other uses). This should be the basis to effectively demonstrate through a devoted analysis that the anchovy fishery is not affecting those species beyond anecdotic evidence of by catch of some species. In the Transboundary Diagnostic Analysis (developed under the GEF-UNDP Humboldt Project between 2013-15) they were identified three main problems, one of them being the high by catch or accidental catch of not target species, although that conclusion is not related to a single but many fisheries in the two countries.

The catch on anchovy in the southern Peru-northern Chile has been characterized in recent years by high recruitments, then closing of areas were agreed to protect juvenile fish. It contributes to explain the reduced catches during last years, not a lack of availability rather than the small size of the fish. In northern Chile the industry also performed a voluntary closing of operations because the dominance of juvenile fish in the population.

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	X		
Category C Species	X		
Category D Species	X		
Section F – Further Impacts	X		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?
Yes

2. Has the fishery assessment been fully completed, using the recognised MARINTRUST fishery assessment methodology and associated guidance?
Yes

3. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?
Yes

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

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

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

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

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

3F. Are the scores in “Section F – Further Impacts” clearly justified?
The prohibition to perform industrial fishing in Chile extends to Marine Protected Areas and the first five miles from the shore line zone, which are devoted to artisan fishing only. However, in the XIV and I Regions (the northern most of Chilean coast) there were exceptions to enable the operation of industrial vessels in limited areas under agreement between all involved parties (Subpesca, industry and the artisan sector). During March 2021 the Chilean Supreme Court instructed the government to not to extend that special regime due to the rights invoked by artisan fisherman, not because impacts on the ecosystem.

Optional: General comments on the Peer Review Draft Report