



## MarinTrust Standard V2

# Whole fish Fishery Assessment Jack Mackerel (*Trachurus murphyi*), *FAO 87, Chilean EEZ Regions XV-X*

**MarinTrust Programme**

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## Table 1 Application details and summary of the assessment outcome

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<b>Name(s):</b> Alimar Industrias Isla Quihua: Alimentos Pesqueros: Blumar S.A. San Vicente/Corral: Camanchaca Pesca Sur S.A. Coronel: Compañía Pesquera Camanchaca S.A. Iquique: Corpesca, Iquique Oriente : Corpesca, Mejillones/Arica Sur/Arica Norte/Iquique Sur; Fiordo Austral, Salmonoil/Glaciares/Pesquera Fiordo Austral/ Graneros S. A.:FoodCorp Chile S.A.:Lota Protein S.A.:Orizon S.A.: Coquimbo/Coronel Sur, Sociedad Pesquera Landes SA			
<b>Country:</b> Chile			
<b>Email address:</b>		<b>Applicant Code</b>	
Certification Body Details			
<b>Name of Certification Body:</b>		LRQA	
Assessor Name	CB Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Blanca Idalia Gonzalez Garza	Jose Peiro Crespo	7	Surveillance 2
Assessment Period	June 2024 – June 2025		
Scope Details			
Management Authority (Country/State)	South Pacific Regional Fisheries Management Organisation (SPRFMO) and Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA)		
Main Species	<i>Trachurus murphyi</i> – Jack mackerel / Jurel		
Fishery Location	FAO 87, Chilean EEZ Regions XV-X		
Gear Type(s)	Purse seine		
Outcome of Assessment			
Overall Outcome	Approved		
Clauses Failed	None		
CB Peer Review Evaluation	Agree with Approval		
Fishery Assessment Peer Review Group Evaluation	Agree with Approval		
Recommendation	Approve		

**Table 2. Assessment Determination**

Assessment Determination
<p>The purse seine jack mackerel (<i>Trachurus murphyi</i>) fishery in Chile is considered as monospecific since its catch represents more than 95% Jack mackerel. It is not an ETP species, and there is a Total Allowance Catch (TAC) established by the Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA), who as a Commission Member of the South Pacific Regional Fisheries Management Organisation (SPRFMO) adheres to the established regulations supported by the Jack Mackerel Science Working Group of the Commission. Therefore, jack mackerel was assessed as the only Category A species. The Pacific chub mackerel (<i>Scomber japonicus</i>) was assessed as a Category D species, since it is the most common by catch species of the jack mackerel fishery, it is not an ETP species, and its catch is not regulated.</p> <p>There is a robust management framework for the jack mackerel fishery, supported by science committees at national and international level. Compliance with this framework is monitored and when irregularities are identified sanctions are established; hence there is an effective management of the fishery. Dependent and independent fishery data are collected frequently to update and improve the stock assessment each year, as well as the Harvest Control Rule to establish each year the Total Allowance Catch (TAC) or if necessary, the prohibition of jack mackerel removals. The last assessment carried out in 2023 showed that estimated stock biomass is well above BMSY and fishing mortality is well below FMSY.</p> <p>Pacific chub mackerel was assessed as a Category D species, since it is a Least Concern species in the IUCN red list, it is not in any CITES appendix and this species is not under any management regimens and total catch is ~1.18%. In the PSA chub mackerel was awarded an average productivity score of 1.29 and an average susceptibility score of 2, and it passed against Table D3, indicating that the species is not vulnerable to this fishery.</p> <p>According to available information, the negative effect of the fishery on ETP species is practically null, since measures are in place to minimize mortality. The jack mackerel fishery does not affect the habitat either, since purse seine do not interact with any physical habitat. Fishery management framework, national and international, consider an ecosystem approach to ensure the long-term conservation and sustainable use of the resources while safeguarding the marine ecosystems.</p> <p>The jack mackerel fishery in the FAO 87, Chilean EEZ Regions XV-X, passed all the Marin Trust requirements in this assessment, therefore its approval is recommended to be used as a raw material in Marine Trust certified products.</p>
Fishery Assessment Peer Review Comments
<p>Please see Annex B for full comments from the FAPRG.</p> <p>Summary:</p> <p>The report is clear and concise, it demonstrates the current good state of the fishery. In this fishery exist however a controversy regarding the number of sub-populations that could co-exist in the South Pacific. Therefore, the stock is managed as a single unit though there is a task group in charge of analyzing the connectivity between possible sub-populations. The Jack Mackerel Working Group (JMWWG) at SPRFMO is conducting an MSE assessment of the performance of fishery management. Meanwhile, Peru has just 2% of quota in the Convention area in despite its carrying capacity (70 fishing purse seine vessels), then Peru is providing fishing quotas on Jack Mackerel under the Article 21 of the SPRFMO Convention due to the destiny of catches in Peru: direct human consumption while most of other catches goes to the production of fish meal. At the other side, the regulations of the common Jack/Chub mackerel in Peru are far more restrictive than the ones imposed by SPRFMO.</p>
Notes for On-site Auditor

In June 2024 the Chilean jack mackerel industrial purse seine fishery continues to meet applicable MSC requirements and the certification status of the fishery as certified remains unchanged. The 3<sup>rd</sup> surveillance revised report was published in January 2024.

<https://fisheries.msc.org/en/fisheries/chilean-jack-mackerel-industrial-purse-seine-fishery/@assessments>

## 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)	
			A1	A2
Category A	Jack mackerel / Jurel ( <i>Trachurus murphyi</i> )	>95%	A1	PASS
			A2	PASS
			A3	PASS
			A4	PASS
Category B	No Category B species	N/A	N/A	
Category C	No Category C species	N/A	N/A	
Category D	Pacific chub mackerel / Caballa ( <i>Scomber japonicus</i> )	≤4%	PASS	

## Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category <sup>1</sup>	% of landings	Management	Category
Jack mackerel / Jurel	<i>Trachurus murphyi</i>	FAO 87, Chilean EEZ Regions XV-X	Data Deficient <sup>2</sup> (Unknown)	≥95%	Yes	A
Pacific chub mackerel / Caballa	<i>Scomber japonicus</i>	FAO 87, Chilean EEZ Regions XV-X	Least Concern <sup>3</sup> (Stable)	≤4.5%	No	D

### Species categorisation rationale

The species considered in this assessment are the jack mackerel and the chub mackerel as in the previous surveillance report. The last jack mackerel annual report presented by the Republic of Chile to the SPRFMO in 2023 indicates that chub mackerel has been the main bycatch species for the Jack mackerel target fishery and that other species caught as bycatch showed a negligible amount<sup>4</sup>.

Jack mackerel was assessed as a Category A species, since it is a Data Deficient species in the IUCN red list, it is not in any CITES appendix, and The South Pacific Regional Fisheries Management Organization (SPRFMO) is committed to rebuilding the stock of the species and ensuring its long-term conservation and sustainable management; also there is a management plan for jack mackerel from XV – X regions<sup>6</sup>, elaborated for the Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA), which adopts a precautionary management approach, and each year the stock is assessed to determine the total allowable catch (TAC). Jack mackerel fishery is considered monospecific and the 2023 MSC surveillance assessment for this fishery indicates that according to data from the Chilean on-board observer program during 2021, jack mackerel represented ~98.8% of the total estimated catch for the fishery<sup>5</sup>.

Pacific chub mackerel was assessed as a Category D species, since it is a Least Concern species in the IUCN red list, it is not in any CITES appendix and this species is not under any management regimens the status of the stock is unknown<sup>7</sup>, and total catch is ~1.18%<sup>5</sup>.

<sup>1</sup> <https://www.iucnredlist.org/>

<sup>2</sup> <https://www.iucnredlist.org/species/183965/8207652>

<sup>3</sup> <https://www.iucnredlist.org/species/170306/170083106>

<sup>4</sup> <https://www.sprfmo.int/assets/Meetings/02-SC/11th-SC-2023/Plenary-documents/SC11-Doc25-Annual-Report-of-the-republic-of-Chile-to-SC11-2023-Jack-Mackerel.pdf>

<sup>5</sup> <https://fisheries.msc.org/en/fisheries/chilean-jack-mackerel-industrial-purse-seine-fishery/@assessments>

<sup>6</sup> [https://www.subpesca.cl/portal/616/articles-99235\\_documento.pdf](https://www.subpesca.cl/portal/616/articles-99235_documento.pdf)

<sup>7</sup> [https://www.fishsource.org/stock\\_page/1647](https://www.fishsource.org/stock_page/1647)

## 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
<b>Clause outcome:</b>		PASS

There have been no substantial changes in the aspects of the fishery relevant to Section M1 since the 2023 surveillance. For convenience, a summary of the conclusions of that assessment is provided below with some information and references updated; please refer to the previous assessment report for more details.

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

Clause is met, considering that:

The South Pacific Regional Fisheries Management Organisation (SPRFMO) lead the stock management to promote long-term conservation and sustainable use of this fishery since 2012 (SPRFMO 2024a). The SPRFMO Conservation and Management Measures (CMMs) define the regulatory framework for the SPRFMO fisheries in the high seas areas of the South Pacific Ocean, where the jack mackerel is one of the main commercial resources; each year the Commission may revise existing, or adopt new, CMMs (SPRFMO 2024b).

The Undersecretary of Fisheries and Aquaculture (SUBPESCA) is the responsible for the design and implementation of fisheries and aquaculture policies, regulations and management measures (SUBPESCA 2024a). The National Fisheries and Aquaculture Service (SERNAPESCA) supervises and manages the protection of the hydrobiological resources and their environment by promoting compliance with regulations (SERNAPESCA 2024a), and The National Fisheries Society (SONAPESCA) is a union federation that brings together the main unions and actors in industrial fishing in Chile that promotes a responsible fishing with rigorous and strict compliance with the regulations established to achieve the sustainability of the resource and comprehensive care of the sea; in collaboration with the authority to eradicate non-compliance with the fishing quotas within the Chilean coasts (SONAPESCA 2024).

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

Clause is met, considering that:

The SPRFMO has standards for the collection, verification, reporting, storing and dissemination of data; this information is the base for the conservation and management of fishery resources, non-target and associated or dependent species and the protection of the marine ecosystems in which those resources occur. There is a specific database for Jack mackerel since 2013 within the SPRFMO Area (SPRFMO 2024c, 2024d), and this data are used by the Scientific Committee Jack mackerel working group for the assessment of the fishery and to establish Harvest Control Rules, identify management objectives, and design species rebuilding plan (SPRFMO 2024e).

In Chile, SUBPESCA have a Technical Scientific Committee, they define the biological conservation status of jack mackerel, the biologically acceptable catch range for the next year and estimation of Biological Reference Points, all this taking in consideration the results provided by the SPFRMO Scientific Committee (SUBPESCA 2024b). The Fisheries Development Institute (IFOP) supports the sustainable development of the country's fishing and aquaculture sector by creating alliances with Chilean universities and institutions of the national and international sector for managing fishing biological data (IFOP

2024). SERNAPESCA compile the required information for creating the Fisheries and Aquaculture Statistical Yearbooks, where jack mackerel landing information can be found since 2018 (SERNAPESCA 2024b), and the Fisheries Research Institute (INPESCA) is dedicated to the diagnosis of regional fisheries and their relationship with the environment (INPESCA 2024).

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

Clause is met, considering that:

The organisations responsible for managing the fishery states their commitment to sustainability in their respective websites.

- SPRFMO: “The South Pacific Regional Fisheries Management Organisation is an inter-governmental organisation that is committed to the long-term conservation and sustainable use of the fishery resources of the South Pacific Ocean and, in so doing, safeguarding the marine ecosystems in which the resources occur” (SPRFMO 2024a).
- SUBPESCA: The Institutional mission 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” (SUBPESCA 2024a).
- SERNAPESCA: Their mission is to “contribute to the sustainability of the sector and the protection of hydrobiological resources and their environment, through comprehensive inspection and health management that influences sectoral behaviour promoting compliance with regulations” (SERNAPESCA 2024a).
- SONAPESCA: “we are especially committed to a sustainable exploitation of all the resources of the sea; with rigorous and strict compliance with the regulations established to achieve the sustainability of the resource and comprehensive care of the sea; in collaborating with the authority to eradicate non-compliance with the fishing quotas of the Chilean coasts; and with any other conduct that does not strictly conform to the law and ethical principles that should govern our conduct.” (SONAPESCA 2024).

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

Clause is met, considering that:

The SPRFMO is ruled by the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean, which have 45 Articles that state how fisheries should be assessed and managed through the application of the precautionary and ecosystem approach in all waters of the Pacific Ocean beyond areas of national jurisdiction in accordance with international law (SPRFMO 2023). Meaning that they are completely empowered to take management action in the SPRFMO area.

Republic of Chile, as a Commission Member of the SPRFMO, agrees that conservation and management of fishery resources shall be conducted taking in consideration best international practices. In compliance to Article 4.2, SUBPESCA is legally empowered to take management actions through the General Law on Fisheries and Aquaculture No. 18.892 of 1989, and its amendments (LGPA 2023), in order to align Chilean fisheries regulation with those from the SPRFMO.

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

Clause is met, considering that:

The SPRFMO holds annual meetings of the Commission (COMM) where representatives stakeholders from different sectors involved in fisheries of each member country participate. The Jack mackerel Working Group meet during the annual Scientific Committee meeting, in inter-sessional virtual meetings and in Scientific Committee Workshops. (SPRFMO 2024f). The SPRFMO has meeting workshops reports available for consultation in their website; particularly, jack mackerel assessments reports are available since 2014 (SPRFMO 2024g).

By law the SUBPESCA established Fishery Management Committees, which are consultative and advisory bodies of the fishing authority conformed by stakeholders from the main sectoral representatives of each fishery, as well as officials of SUBPESCA and SERNAPESCA; and Technical Scientific Committees who are advisory and/or consultation bodies of the SUBPESCA where member are nominated by public competition. In both cases there is a specific Jack mackerel Committee (SUBPESCA 2024c,



2024b) that meet regularly. Management Committees meetings acts, reports and resolutions are available since 2015 (SUBPESCA 2024c) and those from the Scientific Committee are available since 2013 (SUBPESCA 2024b).

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

Clause is met, considering that:

Both, The SPRFMO and SUBPESCA, publish and give free access to all Committee held meetings reports without the need to be requested in their respective websites. It is also possible to find jack mackerel information and data used for decision-making processes.

- <https://www.sprfmo.int/meetings/meeting-reports-2/>
- <https://www.subpesca.cl/portal/616/w3-propertyname-539.html>

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SUBPESCA. (2024b). Comités Científicos de Pesquería de Jurel. <https://www.subpesca.cl/portal/616/w3-propertyvalue-51143.html>

SUBPESCA. (2023c). Comité de manejo Jurel. <https://www.subpesca.cl/portal/616/w3-propertyvalue-52832.html#>

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

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

There have been no substantial changes in the aspects of the fishery relevant to Section M1 since the 2023 surveillance. For convenience, a summary of the conclusions of that assessment is provided below with some information and references updated; please refer to the previous assessment report for more details.

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

Clause is met, considering that:

In Chile, The National Fisheries and Aquaculture Service (SERNAPESCA) is the entity responsible to supervise and manage the fisheries behaviour to promote compliance with regulations. They have presence in the 16 regions of the country, thanks to a staff of 900 people and 46 provincial offices that include 2 insular offices (SERNAPESCA 2024a).

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

Clause is met, considering that:

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

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

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

Clause is met, considering that:

According to the SERNAPESCA’s 2023 Report on Oversight Activities in Fishing and Aquaculture (SERNAPESCA 2023a), low level violations in the jack mackerel fishery occurs, Jack mackerel do not appear in the top 10 of the most sized species in 2023, and only 2% of the complaints to courts were associated to the jack mackerel. No further information related to serious non-compliance in the jack mackerel fishery, nor evidence of IUU, was found; suggesting that fishers comply with relevant regulations and jack mackerel is not being overexploited in the country. In consequence, the Chilean jack mackerel catch quota in the South Pacific increased a 17% for 2024 (824,272 t) regarding 2023 (703,800 t) (SUBPESCA 2023).

**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.**

Clause is met, considering that:

Chile has a National Supervision Plan (NSP) which has the objective of ensuring the application of the rules and requirements that must be respected by those who carry out exploitation activities of fishing resources. SERNAPESCA designs the NSP each year based on a strategic framework with guidelines on compliance priorities for each technical area (fisheries, aquaculture and foreign trade) (SERNAPESCA 2023b). The NSP establish several inspection programs such as: satellite monitoring program, landing certification program, weighing system program, joint operations programs and special control programs.

According to the SERNAPESCA’s 2023 Report on Oversight Activities in Fishing and Aquaculture (SERNAPESCA 2023a), 65,723 inspection activities were carried out, representing a decrease of 29.2% compared to 2022. The satellite tracking system allowed monitoring 94 industrial vessels and 401 artisan vessels, achieving a total of 122,637 remote inspections (figure 1). This satellite tracking system represented 65.2% of the total inspection activities carried out. The landing certification program carried out inspections at landing points, which made possible to certify 40,574 landings throughout the year. Also, 2,785 joint operations were carried out in commercial and recreational fishing, representing 46.9% more than 2022.

The inspection coverage of fishing regulations indicators states that 9.99 inspection activities are carried out for every 10 artisanal landings, while 59.1 activities are carried out for every 10 industrial landings. Inspection activities coverage increased 12.2% for the artisanal and 14.4% for industrial fisheries in contrast to 2022. (SERNAPESCA 2023a).

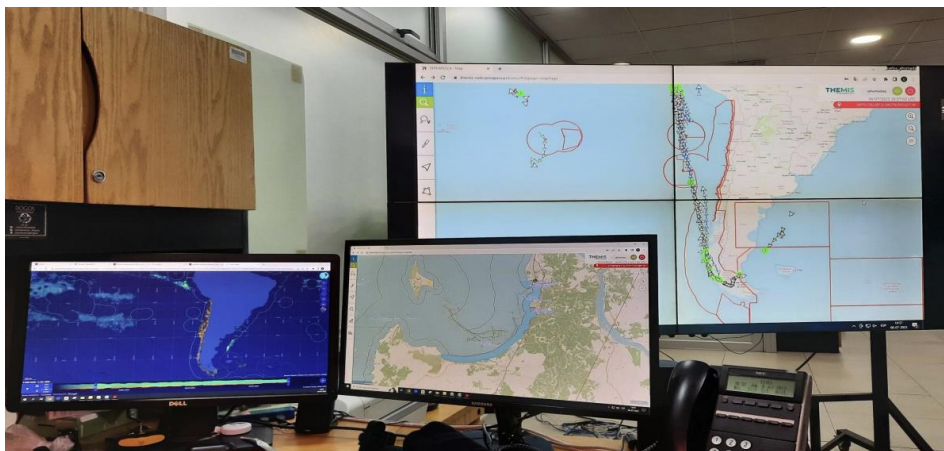


Figure 1. Satellite monitoring of ships and fishing vessels (SERNAPESCA 2023a).

**References**

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<b>Links</b>	
<b>MarinTrust Standard clause</b>	1.3.1.3
<b>FAO CCRF</b>	7.7.2
<b>GSSI</b>	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.**

<b>Species Name</b>		Jack Mackerel ( <i>Trachurus murphyi</i> )	
<b>A1</b>	<b>Data Collection - Minimum Requirements</b>		
	<b>A1.1</b>	Landings data are collected such that the fishery-wide removals of this species are known.	PASS
	<b>A1.2</b>	Sufficient additional information is collected to enable an indication of stock status to be estimated.	PASS
<b>Clause outcome:</b>			PASS

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

Clause is met, considering that:

The SPRFMO Secretariat have jack mackerel catch data since 1970. According to the Conservation and Management Measures (CMM) of the SPRFMO Commission, all Members (Australia, Belize, Republic of Chile, People's Republic of China, Cook Islands, Republic of Cuba, Republic of Ecuador, European Union, Kingdom of Denmark in respect of the Faroe Islands, Republic of Korea, New Zealand, Republic of Panama, Republic of Peru, Russian Federation, Chinese Taipei, The United States of America, and Republic of Vanuatu) participating in the jack mackerel fishery must report monthly catches within 20 days of the end of the calendar month, when total catches have reached 70% of their catch limit, reports are made every 15 days (SPRFMO 2024).

Database of historical catch data was published as Annex 1 of the Secretariat SC11-JM01:rev2 *Trachurus murphyi* catch history report, where the 2023 data are an estimate from part year results (Figure 1) (SPRFMO 2023a). The excel file is available for download: <https://www.sprfmo.int/meetings/scientific-committee/10th-sc-2022/>. Data are grouped in four distinct fleets: 1) coastal purse seine fishery in northern Chile (Chilean administrative regions XV-II), 2) purse seine fishery in central-south Chile that extends into the high seas (Chilean administrative regions III-X), 3) far-north coastal purse seine fisheries occurring in the EEZs and Territorial waters of Ecuador and Peru, and 4) offshore trawl fleet operating solely in the SPRFMO Area (Figure 2). (SPRFMO 2023a). This demonstrate that removals are monitored frequently, providing robust data for supporting the harvest control rule.

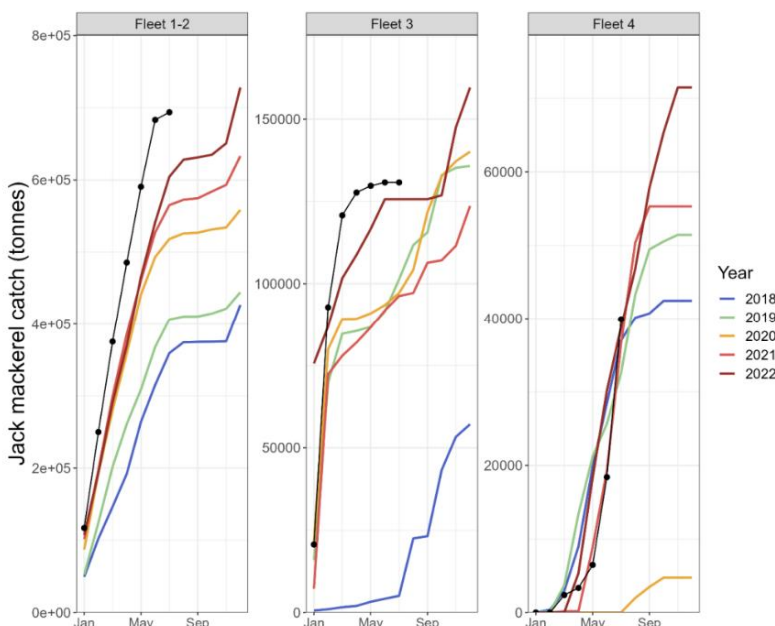


Figure 1. Cumulative catches of jack mackerel by year and fleet (fleets 1 and 2 are combined). The black line with points represents the cumulative catches through July of 2023 (SPRFMO 2023a).

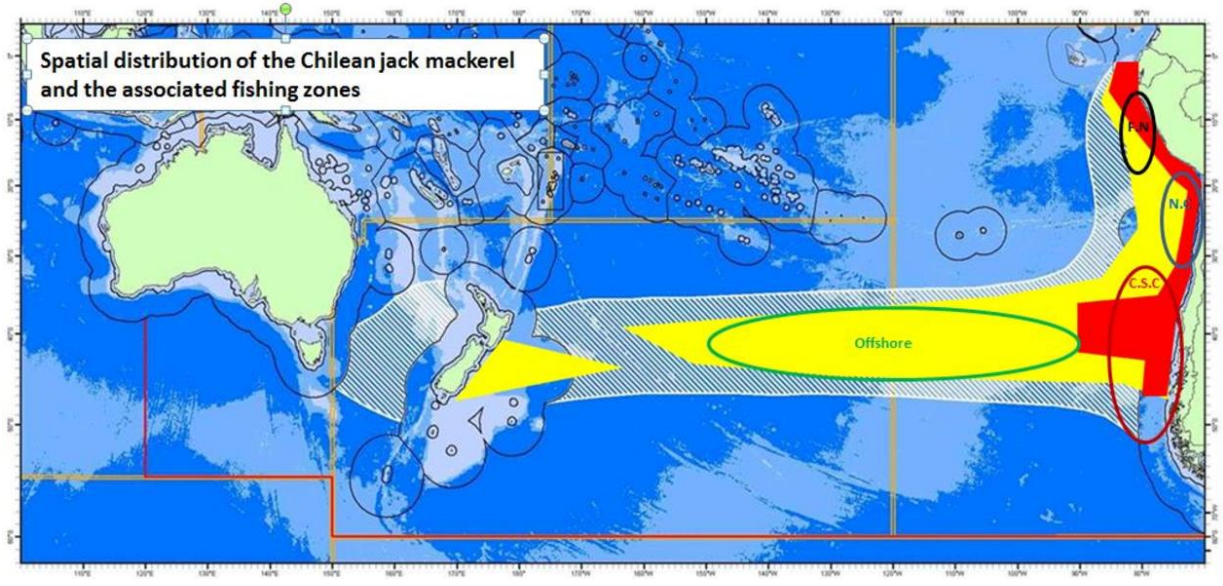


Figure 2. Description of the spatial distribution of the jack mackerel based on catches data (yellow) and survey index (red), with the corresponding four fishing zones: 1) coastal purse seine fishery in northern Chile (blue circle), 2) purse seine fishery in central-south Chile that extends into the high seas (red circle), 3) far-north coastal purse seine fisheries occurring in the EEZs and Territorial waters of Ecuador and Peru (black circle), and 4) offshore trawl fleet operating solely in the SPRFMO Area (green circle) (Guele et. al 2014)

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

Clause is met, considering that:

Jack mackerel stock status is based on stock assessments conducted using the Joint Jack Mackerel (JJM) statistical catch-at-age model, as developed collaboratively by participants in 2010 (SPRFMO 2023b). The JJM assessment models use the following information: fleet, catch-at-age, catch-at-length, landings, CPUE, acoustic and daily egg production method (DEPM) survey data (SPRFMO 2023c) (Figure 3). Considering that the benchmark assessment for Jack mackerel occurred in July 2022, the Scientific Committee agreed that the assessment would be carried out in line with the results of the benchmark workshop (SPRFMO 2023b). This demonstrates that relevant information related to the stock structure, stock productivity and fleet composition is available to support the harvest strategy.

Fleet	Catch-at-age	Catch-at-length	Landings	CPUE	Acoustic	DEPM
1 North Chile purse seine	1980-2023	-	1970-2023	-	Index: 1984-1988; 1991; 2006-2021, 2023 Age comps: 2006-2007, 2009; 2013-2021, 2023	-
2 South-central Chile purse seine	1980-2023	-	1970-2023	1983-2023	1997-2009 Age comps: 2001-2009	Index: 1999-2001; 2003-2008 Age comps: 2001; 2003-2006, 2008
3 FarNorth	-	1980-2023	1970-2023	2002-2023	1985-2008; 2010-2013	-
4 International trawl off Chile	2015-2023	2015-2023*	1970-2023	China, EU, Korea, Russia, & Vanuatu (2008-2022)	-	-

(\*) Are converted to age using age-length keys of central-southern area off Chile, the EU, and Russia.

Figure 3. Years and types of information used in the JJM assessment models (SPRFMO 2023c)

**References**

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**Links**

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

<b>A2 Stock Assessment - Minimum Requirements</b>		
<b>A2.1</b>	A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species.	PASS
<b>A2.2</b>	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	PASS
<b>A2.3</b>	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	PASS
<b>A2.4</b>	The assessment is subject to internal or external peer review.	PASS
<b>A2.5</b>	The assessment is made publicly available.	PASS
<b>Clause outcome:</b>		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.**

Clause is met, considering that:

In 2008 the Science Working Group of the SPRFMO held a workshop to review all available information for use in jack mackerel stock assessments, to agree on data inputs, biological parameters and assumptions to use in joint stock. Trials were made in 2009, but it wasn't until 2010 when the Task Team on Chilean jack mackerel stock assessment agree to use the Joint Mackerel model approach (JJM). This model requires the following input data (SPRFMO 2010):

- **Removals:** catch biomass, catch at age, and catch at length, by fleet.

- **Abundance:** CPUE, acoustic survey, egg survey, trawl survey.
- **Biology:** natural mortality, growth function, maturity at age, maturity at size, aging, age-length key, weight at age, weight at age, L-w relationship, and maps of catch distribution.

The JJM had been used since then to assess the jack mackerel stock annually, where each year data are review, discussed and updated. The last jack mackerel benchmark workshop was held in July 2022, and new data based on the updated aging criteria developed by Chile, including age compositions and weight-at-age in the catches of Chile and the offshore fleets, and in the acoustic surveys of Central and North of Chile were integrated into the assessment (SPRFMO 2022). For 2023 assessment the Scientific Committee agreed that the assessment would be carried out in line with the results of the 2022 benchmark workshop (SPRFMO 2023a).

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

Clause is met, considering that:

For the jack mackerel stock assessmente SPRFMO SC calculates equilibrium-based reference points within the JJM model. The model estimates values of MSY and FMSY using a Newton-Raphson minimization routine that finds the value of fishing mortality, given the terminal year relative catches (and selectivities-at-age) by fleet, and the terminal year weights-at-ages for each fleet, that maximizes catch. Since weights-at-age and “effective” selectivity change each year, these values can vary. MSY is thus defined as the maximum amount of catch that allows the remaining stock to generate sufficient recruitment to maintain the population at the same level. BMSY is taken as the long-term average of biomass fished under MSY. Between 2013 and 2021, a provisional BMSY level of 5.5 million tons was instated based on a analyses executed at SC03. In SCW14, the provisional management reference point for BMSY was revised to a ten-year average of the model-estimated BMSY. A limit reference point Blim (where B refers to spawning biomass) for the single-stock hypothesis was also developed during SCW14. Blim was defined as the spawning biomass level below which recruitment would likely be impaired. As such, there should be no fishing when the current spawning biomass is estimated to be below Blim. For jack mackerel, Blim was computed from the lowest ratio of historical spawning biomass relative to the most-recently-estimated unfished spawning biomass. In SCW14, this ratio was estimated to be 8% of the unfished spawning biomass (Figure 1). Data to set and update reference points considering two stock composition hypotheses (one-stock and two-stocks) are used each year, however in the 2023 assessment the working group mentioned that the one-stock model performs better than the two-stock model with respect to retrospective patterns (SPRFMO 2023a, 2023b)

The updates to the data for the 2023 resulted in similar estimates of the reference points (Figure 1). The stock has consistently been estimated as rebuilt since 2018, and not subject to overfishing since 2013, relative to the dynamically-estimated MSY reference points (SPRFMO 2023b). The jack mackerel stock(s) in the southeast Pacific show(s) is estimated at approximately the same stock size as in 2022 at around 16.4 million tonnes and is considered to be exploited sustainably (i.e., fishing mortality well below FMSY) and its biomass is estimated to be well above BMSY (SPRFMO 2023a)



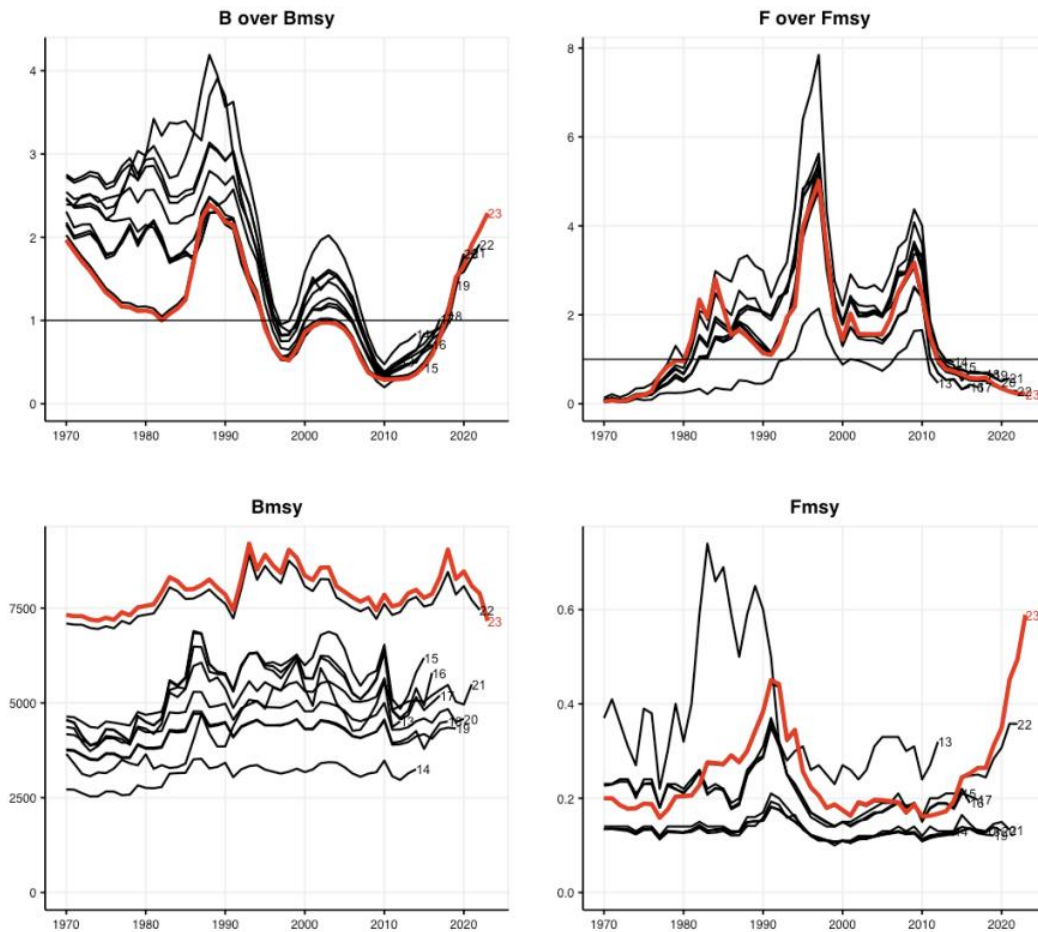


Figure 1. Historical retrospective of management reference points estimated from Model h1\_1.07 (single-stock hypothesis), as estimated and used for advice from past (and present) SPRFMO scientific committees (SPRFMO 2023b)

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

Clause is met, considering that:

During the stock assessment carried out by the SPRFMO SC the Harvest Control Rule (HCR) is used to set the total allowable catch (TAC) (figure 2). In 2024, the total catch of *Trachurus murphyi* in the area to which this CMM applies shall be limited to 1,135,295 tonnes. Members and CNCs are to share in this total catch in the tonnages set out in Table 1 (SPRFMO 2024).

As a result of the SPRFMO annual stock assessment an Acceptable Biological Catch (ABC) for jack mackerel throughout the South Pacific is recommended to the Commission. Then, the Chilean Mackerel Scientific and Technical Committee (CCT-J) review and analyse the information to recommend the minimum and maximum range of CBA for the country. Finally, the Minister of Economy, Development and Tourism, taking in consideration the recommendation of the CCT-J, defines the following year global annual catch quota for jack mackerel. (SUBPESCA 2017). According to the SPRFMO information, the suggested TAC for Chile is 819,720 tonnes (SPRFMO 2024), but the 2024 jack mackerel quota authorized by SUBPESCA is 824,272 tonnes (SUBPESCA 2023).

### Harvest Control Rule

Stock status	TAC calculation method
$B_{t+1} < B_{lim}$	Set TAC to zero; directed jack mackerel fishing prohibited
$B_{t+1} \leq 80\%$ of $B_{MSY}$ (or proxy)	1) Compute trial catch ( $C_{trial}$ ) at estimated $F_t$ or $F_{MSY}$ (whichever is smaller) If $C_{trial} < C_{replacement}$ Set catch at or below $C_{trial}$ (the stock will increase) Else if $C_{trial} > C_{replacement}$ Set catch at or below $C_{replacement}$ (the stock remains stable)
$B_{t+1} > 80\%$ of $B_{MSY}$ (or proxy) and $B_{t+1} \leq B_{MSY}$ (or proxy)	2) Compute trial catch ( $C_{trial}$ ) at estimated $F_{MSY}$ (or proxy) If $C_{trial} < C_{replacement}$ Set catch at or below $C_{trial}$ Else if $C_{trial} > C_{replacement}$ Use method 1). The TAC will not be allowed to vary by more than 15% between years
$B_{t+1} > B_{MSY}$ (or proxy)	3) Set catch at or below value based on $F_{MSY}$ The TAC will not be allowed to vary by more than 15% between years

Figure 2. Proposed harvest control rule for jack mackerel, as adjusted during the 2022 benchmark workshop (SPRFMO 2022)

Member / CNCP	Tonnage
Belize	<u>1,317</u>
Chile	<u>819,720</u>
China	<u>74,147</u>
Cook Islands	<u>1,266</u>
Cuba	<u>2,552</u>
Ecuador	<u>14,456</u>
European Union	<u>74,047</u>
Faroe Islands	<u>12,682</u>
Korea	<u>14,805</u>
Panama	<u>1,266</u>
Peru (HS)	<u>25,337</u>
Russian Federation	<u>40,241</u>
Vanuatu	<u>53,461</u>
Total	<u>1,135,295</u>

Figure 3. 2024 suggested total catch for *Trachurus murphyi* in the SPRMFO area. (SPRFMO 2024)

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

Clause is met, considering that:

Before the assessment each Commission Member should perform an internal review of the data to ensure compliance with SPRFMO data submission templates and agreements made in the jack mackerel working group.

The stock assessment data and modeling results are review internally by the jack mackerel working group, who are always looking the best way to improve the assessment. They also invite experts to participate in workshops, review the work involved in the assessment and to provide advice. Then the assessment, including advice on fishery management, is submitted to the SPRFMO Scientific Committee for review at their annual meetings.

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

Clause is met, considering that:

The SPRFMO have the jack mackerel workshop reports, datasets, modeling description, discussion and conclusions available for consultation on the SPRFMO webpage. Specifically Jack mackerel stock assessments reports since 2014 can be found here: <https://www.sprfmo.int/meetings/scientific-committee/sc-workshops/> , and Working Group papers and other relevant annexes can be found within the SPRFMO annual Commission Meeting reports at <https://www.sprfmo.int/meetings/comm/> .

**References**

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SUBPESCA. (2023). Dec. Ex. Folio 202300164 Establece Cuota Anual de Captura Para el Recurso Jurel, Año 2024. (Publicado en Página Web 29-12-2023). <https://www.subpesca.cl/portal/615/w3-article-120214.html>

**Links**

<b>MarinTrust Standard clause</b>	1.3.2.1.2, 1.3.2.1.4, 1.3.1.2
<b>FAO CCRF</b>	12.3
<b>GSSI</b>	D.5.01, D.6.02, D.3.14

<b>A3</b>	<b>Harvest Strategy - Minimum Requirements</b>		
	<b>A3.1</b>	There is a mechanism in place by which total fishing mortality of this species is restricted.	PASS
	<b>A3.2</b>	Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.	PASS
	<b>A3.3</b>	Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).	PASS
<b>Clause outcome:</b>			PASS
<b>A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.</b>			

Article 20 of the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean states that conservation and management measures adopted by the Commission shall include the determination of the total allowable catch or total allowable fishing effort (SPRFMO 2022a). Therefore, the Commission establishes a total allowable catch (annual catch quota) applicable to the entire scope of the fishing resource, meaning that total fishing mortality of the jack mackerel is restricted.

In Chile, from 2001 to 2010, jack mackerel fishing quotas were formally establish based on scientific information provided by the Fisheries Development Institute. Since 2011, management of the jack mackerel fishery at the national level is based entirely on the recommendations issued by the SPRFMO. During 2011 and 2012 the global catch quota was established based on landing history, without a country allocation; from 2013 to the present the SPRFMO quotas were established and divided for each of the member countries of the Commission (SUBPESCA 2017).

**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.**

Clause is met, considering that:

Since 2013 the jack mackerel catch limits (TAC) has been set at or below the level recommended by the SPRFMO Scientific Committee. In Table 1 advice catch, catch limits (TAC), and reported catch of jack mackerel since 2013 are shown (values are in tons). From 2013 to 2018, the percentage of the quota usage was between 81.2 % to 94.4%, hence fishery removals do not exceed the TAC. Since 2019 up to 2023 the quota was exceeded; however, the surplus does not exceed 10% of the recommended TAC and the stock status is above the limit reference point (SPRFMO 2023a).

Year	Recommended Maximum Catch	Catch limits (TAC)	Reported Catch	% Catch quota used
2013	441,000	438,000	355,539	81.2
2014	440,000	440,000	415,366	94.4
2015	460,000	460,000	395,210	85.9
2016	460,000	460,000	389,101	84.6
2017	493,000	493,000	406,126	82.4
2018	576,000	576,000	527,539	91.6
2019	591,000	591,000	635,569	107.5
2020	680,000	680,000	725,945	106.8
2021	782,000	782,000	802,048	103.3
2022	900,000	900,000	961,428	103.2
2023	1,035,000	1,080,000	1,134,612*	105.05

Table 1. Summary table regarding catch limits and reported catch, and percentage of quota used. (\*Preliminary value) (SPRFMO 2023a)

**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).**

Clause is met, considering that:

Since 1991, the General Law of Fisheries and Aquaculture of Chile (LGPA), determines in its Article 3 that it is possible to establish extractive bans (prohibition of capture or extraction in a specific area for conservation reasons) to favor the administration of the hydrobiological resources. Also, Article 110 mentions that those who capture hydrobiological species in the closed period will be penalized. (LGPA 2024).

After 1995 catch record in Chile, jack mackerel landings started to be composed by a greater presence of juvenile, which is a sign of overexploitation. Chilean Authorities, with a precautionary approach, adopted national and absolute bans that stopped industrial activity for considerable periods of time in order to avoid further overexploitation that could lead to a collapse of the fishery (SUBPESCA 2017).

This shows that when the stock is below its reference limits, the extraction of fishing resources will be subject to extractive bans.

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*Standard clause 1.3.2.1.3*

#### Links

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

A4 Stock Status - Minimum Requirements			
<b>A4</b>	<b>A4.1</b>	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.	
		<b>Clause outcome:</b>	PASS
<p><b>A4.1 The stock is at or above the target reference point, OR IF NOT:</b></p> <p><b>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:</b></p> <p><b>The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.</b></p> <p>Clause is met in their first condition, considering that:</p> <p>The jack mackerel stock(s) in the southeast Pacific show(s) is estimated at approximately the same stock size as in 2022 at around 16.4 million tonnes and is considered to be exploited sustainably (i.e., fishing mortality well below FMSY) and its biomass is estimated to be well above BMSY. The SC noted that the stock is estimated to be in the third tier of the harvest control rule. Within the third tier of the harvest control rule, catches should be limited to a fishing mortality of FMSY which would be expected to result in catches in 2024 of 4,934 k. In line with the accepted rebuilding plan (i.e., “Adjusted Annex K”) and because the jack mackerel biomass is estimated to be above BMSY, the SC recommended for 2024 a 15% increase of the 2023 TAC,</p>			

throughout the range of jack mackerel, at or below 1,242 kt. This advice for catch limits in 2024 does not depend on the stock structure hypothesis that is used. (SPRFMO 2023a)

*Stock status*

		2022	2023
Fishing mortality in relation to:	F <sub>MSY</sub>	Below	Below
Spawning stock biomass in relation to:	B <sub>MSY</sub>	Above 100%	Above 100%

Figure 1. Stock status summary (SPRFMO 2023a).


**References**

SPRFMO. (2023a). 11<sup>th</sup> Scientific Committee Meeting Report. [https://www.sprfmo.int/assets/Meetings/02-SC/11th-SC-2023/SPRFMO-SC11-Report\\_rev1-17-Oct-b.pdf](https://www.sprfmo.int/assets/Meetings/02-SC/11th-SC-2023/SPRFMO-SC11-Report_rev1-17-Oct-b.pdf)

**Links**

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

## CATEGORY D SPECIES

<b>D1</b>	<b>Species Name</b>	Pacific chub mackerel / Caballa ( <i>Scomber japonicus</i> )	
	<b>Productivity Attribute</b>	<b>Value</b>	<b>Score</b>
	Average age at maturity (years)	2 <sup>1</sup>	1
	Average maximum age (years)	7.9 <sup>1</sup>	1
	Fecundity (eggs/spawning)	135,962 <sup>1</sup>	1
	Average maximum size (cm)	64 <sup>1</sup>	1
	Average size at maturity (cm)	22 <sup>1</sup>	1
	Reproductive strategy	Broadcast spawner <sup>1</sup>	1
	Mean trophic level	3.4 <sup>1</sup>	3
	<b>Average Productivity Score</b>		<b>1.29</b>
	<b>Susceptibility Attribute</b>	<b>Value</b>	<b>Score</b>
	Availability (area overlap)	< 10% <sup>1</sup>	1
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)	High overlap with fishing gear <sup>2</sup>	3
	Selectivity of gear type	Individuals < size at maturity are rarely caught <sup>3</sup>	1
	Post-capture mortality	Retain <sup>2</sup>	3
	<b>Average Susceptibility Score</b>		<b>2</b>
	<b>PSA Risk Rating (From Table D3)</b>		<b>PASS</b>
	<b>Compliance rating</b>		<b>PASS</b>
	<b>Further justification for susceptibility scoring (where relevant)</b>		
	<i>For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision</i>		
	<p><b>Availability:</b> <i>Scomber japonicus</i> distributes along the Pacific, the Chilean EEZ fishing area represents less than 10% of the species distribution.<sup>1</sup></p>		
			

	<p><b>Encounterability:</b> The catches of Chub mackerel made until 2019 within the SPRFMO area have been very low (Figure 2 and Table IV), not exceeding 1% of the total, except for 2017 when accounted for 2.2% of the total catches. While from 2020 until May 2023, Chub mackerel fishing operations have been concentrated exclusively within the Chilean EEZ.<sup>2</sup></p> <p><b>Selectivity of gear type:</b> the mean size of the catch has been registered in a range between 28 to 40 cm.<sup>3</sup></p>
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**References**

1 Fishbase. (2023). *Scomber japonicus*, Chub mackerel. <https://www.fishbase.se/summary/Scomber-japonicus.html>

2 SPRFMO (2023). 11th Meeting of the Scientific Committee. SC11-DOC25. Annual Report of the Republic of Chile to SC11 – Jack Mackerel.

3 SUBPESCA. (2021). Plan de reducción del descarte y captura de pesca incidental para la pesquería artesanal de anchoveta (*Engraulis ringens*), jurel (*Trachurus murphyi*) y su fauna acompañante en las Regiones de Atacama y Coquimbo. [https://www.subpesca.cl/portal/615/articles-111941\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-111941_documento.pdf)

**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.**

<b>Productivity attributes</b>	<b>High productivity (Low risk, score = 1)</b>	<b>Medium productivity (medium risk, score = 2)</b>	<b>Low productivity (high risk, score = 3)</b>
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

<b>Susceptibility attributes</b>	<b>Low susceptibility (Low risk, score = 1)</b>	<b>Medium susceptibility (medium risk, score = 2)</b>	<b>High susceptibility (high risk, score = 3)</b>
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	N/A
<b>Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements</b>		
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.	
<b>Outcome:</b>		
<b>Evidence</b> <b>D4.1:</b> The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.  <b>D4.2</b> There is no substantial evidence that the fishery has a significant negative impact on the species.		
<b>References</b>		
<b>Links</b>		
<b>MarinTrust Standard clause</b>		1.3.2.2, 4.1.4
<b>FAO CCRF</b>		7.5.1
<b>GSSI</b>		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.

<b>F1</b>	<b>Impacts on ETP Species - Minimum Requirements</b>		
	<b>F1.1</b>	Interactions with ETP species are recorded.	PASS
	<b>F1.2</b>	There is no substantial evidence that the fishery has a significant negative effect on ETP species.	PASS
	<b>F1.3</b>	If the fishery is known to interact with ETP species, measures are in place to minimise mortality.	PASS
		<b>Clause outcome:</b>	PASS
<b>F1.1 Interactions with ETP species are recorded.</b>			
<p>Clause is met considering that:</p> <p>In 2015, the monitoring of discards and bycatch of the industrial jack mackerel fishery in Chile began. The objective of the monitoring program was to compile the necessary technical background for the preparation of a discard reduction plan. In 2019 The Discard Reduction Plan and Bycatch Catch for the industrial jack mackerel and its accompanying fauna was published (SUBPESCA 2019). The Discard Reduction Plan mentions that having a monitoring program is essential; therefore, interaction of the fishery with other species continue to be recorded up today. These records allow to identify any ETP species that may be interacting with the fishery.</p> <p>The last jack mackerel fishery annual report of Chile was submitted to the Scientific Committee of the SPRFMO in 2023 (SPRFMO 2023). This report includes the cumulative bycatch species records in this fishery from 2015 and 2021. Records were obtained from 2,795 monitored fishing sets. Of the 17 species recorded only 3 were ETP according to the Marin Trust criteria fishery assessment guidance (to be listed as Endangered or Critically endangered by the IUCN or appear in the CITES appendices):</p> <ul style="list-style-type: none"> <li>• Grey-headed albatross (<i>Thalassarche chrysostoma</i>): Endangered (IUCN 2024)</li> <li>• Humboldt penguin (<i>Spheniscus humboldti</i>): CITES Appendix I (CITES 2024)</li> <li>• Leatherback sea turtle (<i>Dermochelys coriacea</i>): CITES Appendix I (CITES 2024)</li> </ul>			
<b>F1.2 There is no substantial evidence that the fishery has a significant negative effect on ETP species.</b>			
<p>Clause is met considering that:</p> <p>Figure 1 shows the incidental catch and resulting mortality by species in the jack mackerel purse seine industrial fishery operating between Valparaíso and Los Lagos Chilean administrative regions, and in the international waters of the SPRFMO from January 2015 and December 2021 (SPRFMO 2023). The effect of fishery on ETP species is:</p> <ul style="list-style-type: none"> <li>• Grey-headed albatross (<i>Thalassarche chrysostoma</i>): 0% mortality</li> <li>• Humboldt penguin (<i>Spheniscus humboldti</i>): 7.7% mortality, average incidental mortality=0.0004</li> <li>• Leatherback sea turtle (<i>Dermochelys coriacea</i>): 0% mortality</li> </ul> <p>The negative effect of the fishery on ETP species is practically null, since from 50 individuals only 1 (a Humboldt penguin) dead as a result of incidental catch.</p>			

Common name	Scientific name	N° of individuals incidentally caught	N° individuals dead as a result of incidental catch	Mort (%)	AIC	CV <sub>AIC</sub>	AIM	CV <sub>AIM</sub>
South american sea lion	<i>Otaria byronia</i>	1,870	13	0.7	0.8	542	0.005	1,639
Dominican gull	<i>Larus dominicanus</i>	244	1	0.4	0.1	1,426	0.0004	4,897
Black-browed albatross	<i>Thalassarche melanophris</i>	215	1	0.5	0.09	1,214	0.0004	4,897
Peruvian pelican	<i>Pelecanus thagus</i>	109	3	2.8	0.05	1,911	0.001	4,897
Unidentified albatross	<i>Thalassarche spp.</i>	61	0	0	0.03	2,049	0	-
Sooty shearwater	<i>Ardenna grisea</i>	47	2	4.3	0.02	2,531	0.0008	3,462
Grey-headed albatross	<i>Thalassarche chrysostoma</i>	36	0	0	0.02	2,105	0	-
Wilson's storm petrel	<i>Oceanites oceanicus</i>	18	1	5.6	0.008	2,175	0.0004	4,897
Pink-footed shearwater	<i>Ardenna creatopus</i>	16	16	100	0.007	2,329	0.0067	2,329
Humboldt penguin	<i>Spheniscus humboldti</i>	13	1	7.7	0.005	4,536	0.0004	4,897
Cape petrel	<i>Daption capense</i>	8	0	0	0.003	3,569	0	-
White-chinned petrel	<i>Procellaria aequinoctialis</i>	8	1	12.5	0.003	4,328	0.0004	4,897
Southern giant-petrel	<i>Macronectes giganteus</i>	8	0	0	0.003	3,569	0	-
Unidentified storm-petrel	Hydrobatidae	1	1	100	0.0004	4,897	0.0004	4,897
Unidentified penguin	<i>Spheniscus spp.</i>	1	1	100	0.0004	4,897	0.0004	4,897
Wandering albatross	<i>Diomedea exulans</i>	1	0	0	0.0004	4,897	0	-
Leatherback sea turtle	<i>Dermochelys coriacea</i>	1	0	0	0.0004	4,897	0	-

Mort (%) = Mortality: Number of dead animals / Number of animals of the same species captured  
AIC = Average Incidental Catch: Number of animals caught / Number of sets observed  
CV<sub>AIC</sub> = AIC Coefficient of variation  
AIM = Average Incidental Mortality: Number of dead animals / Number of sets observed  
CV<sub>AIM</sub> = AIM Coefficient of variation

Figure 1. Incidental catch and resulting mortality by species in the jack mackerel purse-seine industrial fishery. Red squares identify ETP species. (SPRFMO 2023).

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

Clause is met considering that:

Since 2017, the jack mackerel Management Plan included among its objectives the reduction of the percentage of catches of associated species and bycatch, including endangered, threatened and protected species (ETP) (SUBPESCA 2017). As a result of this objective, in 2019 the Discard Reduction and Bycatch Reduction Plan for the industrial jack mackerel fishery was published (SUBPESCA 2019).

This Plan was developed considering the following Articles of the General Law on Fisheries and Aquaculture (LGPA 2023):

- Article 7° C, the return to the sea of all bycatch shall be mandatory, under handling protocols approved by the National Fisheries and Aquaculture Service.
- Article 4 letter c), is mandatory to carry on boats and ships devices or utensils to avoid or minimize by catch.
- Article 4 letter d), is mandatory to carry on boats to release specimens caught incidentally by fishing gear.

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

The compliance of this regulations minimize mortality of ETP species that may interact with the jack mackerel fishery, and this may be the reason why ETP species mortality had been scarce.

**References**

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SUBPESCA. (2019). Plan de Reducción del Descarte y de la Captura de Pesca Incidental para la pesquería industrial de jurel (*Trachurus murphyi*) y su fauna acompañante entre las Regiones de Arica y Parinacota y Los Lagos y en aguas internacionales (SPRFMO). INFORME TÉCNICO (R. PESQ.) N° 106/2019. [https://www.subpesca.cl/portal/615/articles-104140\\_documento.pdf](https://www.subpesca.cl/portal/615/articles-104140_documento.pdf)

**Links**

<b>MarinTrust Standard clause</b>	1.3.3.1
<b>FAO CCRF</b>	7.2.2 (d)
<b>GSSI</b>	D4.04, D.3.08

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

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

Clause is met considering that:

Jack mackerel fishery uses purse seine gear, which is a surface gear used from coastal marine waters to ocean waters; thus, a purse seine does not come into contact with the seabed and it is consider a fishing gear that do not generate any impact in the habitat. Very occasionally in shallow water the bottom of the net may lay on the seabed but as the gear is not dragged across the seabed there should very little effect. (MSC 2024, FAO 2024, Sustain 2024, SUBPESCA 2003)

Taking into account the lack of interaction of the purse seine with any kind of habitat, fishery using this gear does not pose a risk of serious or irreversible harm to any habitat types.

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

Clause is met considering that:

Purse seine does not interact with any physical habitats; therefore, no evidence was found during the assessment about any kind of negative impact on physical habitats by the jack mackerel fishery activity.

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

Clause is met considering that:

Purse seine do not interact with any physical habitats; hence there no need of measures to be in place to minimize and mitigate negative impacts related to interaction of the fishery with physical habitats.

**References**

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

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

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

**Links**

<b>MarinTrust Standard clause</b>	1.3.3.2
<b>FAO CCRF</b>	6.8
<b>GSSI</b>	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
<b>Clause outcome:</b>		PASS

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

Clause is met considering that:

The Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean states in the Article 3, section 2b, that “An ecosystem approach shall be applied widely to the conservation and management of fishery resources through an integrated approach under which decisions in relation to the management of fishery resources are considered in the context of the functioning of the wider marine ecosystems in which they occur to ensure the long term conservation and sustainable use of those resources and in so doing, safeguard those marine ecosystems” (SPRFMO 2022).

In this context, The SPRFMO aligns to the he FAO Ecosystem Approach to Fisheries framework, which has been developed to implement the principles of sustainable development, the Convention for Biological Diversity and the Code of Conduct for Responsible Fisheries in a practical, operational manner (SPRFMO 2024). Also, SPRFMO Science Committee has a Habitat Monitoring and a Deepwater working sub group, which holds annual meetings to discuss ecosystem aspect in relation to the fisheries.

The last jack mackerel fishery annual report of Chile submitted to the Scientific Committee of the SPRFMO in 2023, includes an “Ecosystem approach considerations in the jack mackerel fishery” section (SPRFMO 2023). Here, the main management measures to avoid affecting the ecosystem are the application of the reduction of discard and incidental catch plan, which seems to be effective in maintaining a low mortality of accompanying fauna and ETP species related to jack mackerel fishing, and the monitoring of garbage management on the fishing fleet according to the International Convention MARPOL, whose main rule prohibits the dumping of plastics into the sea.

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

Clause is met considering that:

No evidence was found that the jack mackerel fishery is impacting negatively the marine ecosystem. The approval of the previous sections in this assessment demonstrates that the jack mackerel fishery is regulated in different aspects, which allows minimizing the negative impacts that jack mackerel extraction could have on the ecosystem. In addition, the fishery already holds a valid MSC certification, and the assessment do not have any conditions related to Principle 2 (ecosystem). (Global Trust 2023).

**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.**

Clause is met considering that:

Jack mackerel is an opportunistic consumer of several crustaceans, copepods and other micronekton, while their predators are tunas, billfish, sharks and marine mammals. This suggests that this species may be acting as an energy flow channeler from primary producers to top predators (Konchina 1979, Yan et al. 2012, SPRFMO 2014). However, no evidence was found about the jack mackerel playing a key role in the marine ecosystem.

Considering that the jack mackerel stock assessment biomass levels are well above BMSY and fishing mortality is well below FMSY, and definition of TAC is under a precautionary approach (SPRFMO 2023), it can be recognized that if jack mackerel do play a key role in the ecosystem, fishery removals are regulated in order to avoid overexploitation and guarantee the balance of the ecosystem.

**References**

Konchina, Y. V. (1979). The feeding of the Peruvian jack mackerel, *Trachurus symmetricus murphyi*. Journal of Ichthyology, 19, 52-61.

Global Trust (2023). MSC Certification surveillance report: Chilean jack mackerel industrial purse seine, Surveillance 3. <https://fisheries.msc.org/en/fisheries/chilean-jack-mackerel-industrial-purse-seine-fishery/@@assessments>

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<b>Links</b>	
<b>MarinTrust Standard clause</b>	1.3.3.3
<b>FAO CCRF</b>	7.2.2 (d)
<b>GSSI</b>	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  $r_m$ . 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>]

## Appendix B – Fishery Assessment Peer Review

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

<b>Fishery under assessment</b>	Jack Mackerel ( <i>Trachurus murphyi</i> )
<b>Management authority (Country/State)</b>	South Pacific Regional Fisheries Management Organisation (SPRFMO) and Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA)
<b>Main species</b>	<i>Trachurus murphyi</i>
<b>Fishery location</b>	FAO 87, Chilean EEZ Regions XV-X
<b>Gear type(s)</b>	Purse seine
<b>Overall recommendation. (Approve/ Fail)</b>	Approve

**Summary: in this section, provide any additional information about the fishery that the reviewers feel is significant to their decision.**

SPRFMO is considering to start to issue management in the case of Chub Mackerel (*Scomber japonicus*). In this report, Chub mackerel is considered Category D specie, though in Peru there are total allowable quotas for both Jack and Chub mackerel. There in Peru both species are considered as a single fishery due to the large overlap of the distribution of both species.

There are occasional by catch of ETP species in this fishery. SPRFMO has an expert group on seabirds though there is no information about the true impact of the fishery on marine fauna. It is suspected to be minor, though the only country collecting specific data on interactions of ETP species with the fleet is Peru.

**General Comments on the Draft Report provided to the peer reviewer**

The report is clear and concise, it demonstrates the current good state of the fishery. In this fishery exist however a controversy regarding the number of sub-populations that could co-exist in the South Pacific. Therefore, the stock is managed as a single unit though there is a task group in charge of analyzing the connectivity between possible sub-populations. The Jack Mackerel Working Group (JMWG) at SPRFMO is conducting an MSE assessment of the performance of fishery management. Meanwhile, Peru has just 2% of quota in the Convention area in despite its carrying capacity (70 fishing purse seine vessels), then Peru is providing fishing quotas on Jack Mackerel under the Article 21 of the SPRFMO Convention due to the destiny of catches in Peru: direct human consumption while most of other catches goes to the production of fish meal. At the other side, the regulations of the common Jack/Chub mackerel in Peru are far more restrictive than the ones imposed by SPRFMO.

## 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
<b>A – Fishery Assessment</b>			
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			
Category B Species			
Category C Species			
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?
Scoring agreed
Certification body response
No comments

2. Has the fishery assessment been fully completed, using the recognised MARINTRUST fishery assessment methodology and associated guidance?
Scoring agreed
Certification body response
No comments

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

In the case of Pacific chub mackerel (*Scomber japonicus*) it is true that SPRFMO or SUBPESCA have not issued management plans on this fish, so at that extent is correct to consider it a D type specie. However, this fishery is important in Peru, is well regulated, its abundance is monitored by acoustic surveys and age-length structured models.

**Certification body response**

In Peru the chub mackerel is a target species, thus its fishery is well regulated. However, the SPRFMO 11th Scientific Committee Meeting Report mentions that there was a discussion about “there is no specific CMM for the chub mackerel fishery and that it could be useful to better understand the stock structure of chub mackerel compared to jack mackerel, including the relationship (if any) between chub mackerel found in the South Pacific and the North Pacific. The SC recommended that stocks affected by current fishing practices should be considered for future stock assessments, even if data-limited (with a specific focus on chub mackerel).”<sup>1</sup>

These discussions will continue in the upcoming meeting in November of this year; Thus, I suggest that keep the report as it is and let the SPRFMO scientific group move forward on these matters, but keep an eye in the new report for the next surveillance. There is a lot of uncertainties about how environmental changes due to climate change is affecting chub mackerel distribution and biomass, and oceanographic conditions in Peru are different from those from Chile; therefore, using Peru as reference may be not appropriated given the wide range of distribution of chub mackerel and the difference on fishing pressure in each country.

<sup>1</sup> SPRFMO (2023). 11 th Scientific Committee meeting report 91 p. Wellington, New Zealand 2023. [https://www.sprfmo.int/assets/Meetings/02-SC/11th-SC-2023/SPRFMO-SC11-Report\\_rev1-17-Oct-b.pdf](https://www.sprfmo.int/assets/Meetings/02-SC/11th-SC-2023/SPRFMO-SC11-Report_rev1-17-Oct-b.pdf)

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

M1.1 There is an organisation responsible for managing the fishery.	Yes
There is an organisation responsible for collecting data and assessing the fishery.	Yes
Fishery management organisations are publicly committed to sustainability.	Yes
Fishery management organisations are legally empowered to take management actions.	Yes
There is a consultation process through which fishery stakeholders are engaged in decision-making.	Yes
The decision-making process is transparent, with processes and results publicly available.	Yes

**Certification body response**

No comments

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

Scoring agreed

**Certification body response**

No comments

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

n. a.

Certification body response

NA

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

n. a.

Certification body response

NA

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

Scoring agreed, although please consider my comment in Section 3. SPRFMO has announced some management measures on Pacific chub mackerel since Peru is voluntarily reporting annual catches and results of assessments of the population.

Certification body response

Justification in Section 3.

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

Scoring agreed, though please consider my comments in the Summary.

Certification body response

As describe in section F1 in the report, Chile has a Discard Reduction Plan, which recognized the importance of having a monitoring program; therefore, interaction of the fishery with other species have been recorded since 2015, allowing to identify any ETP species that may be interacting with the fishery. I don’t see necessary to include information from Peru fishery, when Chile is doing their own monitoring ETP bycatch activities, which results are included in the annual report submitted to the SPRFMO.

Optional: General comments on the Peer Review Draft Report

Certification body response

No comments

## 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)