



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: Peru		Zip:	
Tel. No.		Fax. No.	
Email address:		Applicant Code	
Key Contact:		Title:	
Certification Body Details			
Name of Certification Body:		Global Trust Certification	
Assessor Name	CB Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Virginia Polonio	Vito Romito	3	Initial
Assessment Period	To August 2021		
Scope Details			
Management Authority (Country/State)		Peru Ministry of Production (PRODUCE).	
Main Species		Anchoveta (<i>Engraulis ringens</i>)	
Fishery Location		South Eastern Pacific Ocean	
Gear Type(s)		Purse seine (industrial fleet)	
Outcome of Assessment			
Overall Outcome		Pass	
Clauses Failed		None	
CB Peer Review Evaluation		Pass	
Fishery Assessment Peer Review Group Evaluation		Approved – see Appendix	
Recommendation		APPROVED	

Table 2. Assessment Determination

Assessment Determination
<p>Anchoveta (<i>Engraulis ringens</i>) has a wide geographical distribution in the South Eastern Pacific Ocean. There are three different anchoveta stocks along its distribution (Cahuin et al. 2015) and (Mendo 2018) corroborated the distinction of two Peruvian stocks according to the results from electrophoretic studies:</p> <ol style="list-style-type: none"> 1. The Northern-Central Peruvian stock, assessed and managed by Peru; 2. The Southern Peru/ Northern Chile stock (this profile), assessed by Chile and Peru and managed unilaterally by each country. In Chile, it corresponds to the regions of Arica and Parinacota, Tarapacá and Antofagasta (XV-II). 3. The Central-Southern Chile stock, assessed and managed by Chile. <p>In this report the southern Peru stock in Peru EZZ is assessed. The Northern -Central Peruvian and the Central-Southern Chile stocks have not been assessed in this report. Peruvian law allows up to 5% of non-target species bycatch in weight in this fishery. Catches of other small pelagic fishes such as the Carrot squat lobster (<i>Pleuroncodes monodon</i>), Jack Mackerel (<i>Trachurus murphyi</i>); Chub mackerel (<i>Scomber japonicus</i>) have begun to contribute to around 5 % of the total catches, however, they are considered in this assessment as Category D and C correspondingly. None of the species assessed in this report are categorised as Endangered or Critically Endangered on the IUCN Red list nor are they listed in Appendix 1 of CITES.</p> <p>The target species Anchoveta, is above biomass reference points in the last stock assessment, further non-target species mentioned above are also above limits or /and have passed the PSA. Therefore, they meet all the clauses in their categories as per guidance.</p> <p>Information on ETPs species should be improved as the data available are from a private initiative of SALVAMARES' observed programme carried out in the Northern fishery but should be extended to the whole fleet. No new reports have been published since 2019, however, information is considered sufficient to pass the clause as improvements have been carried out and developments were planned for 2020 that they should be reflected in the upcoming reports.</p> <p>More information should be collected to define the direct and indirect impacts the fishery could have in relation to vulnerable species and habitats. In general, the information on the southern stock is less than in the information available for the northern central stock and some information has been used as a proxy to evaluate the fishery when fishery dependent information is not available or public. The main reason for that it might be that total landings of anchoveta in the southern region of Peru, covered by this assessment report, represents a relatively small fraction of the total catch in the country for this fishery.</p> <p>The assessor determined that Southern Peru Anchoveta is APPROVED for the production of fishmeal and fish oil under the MarinTrust v 2.0 by-products standard for whole fish.</p>
Fishery Assessment Peer Review Comments
<p>The Peer reviewer agrees that that Southern Peru Anchoveta shall be APPROVED for the production of fishmeal and fish-oil under the MarinTrust v 2.0 by-products standard for whole fish.</p>
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)	
			A1	A2
Category A	<i>Anchoveta (Engraulis ringens)</i>	95%	A1	PASS
			A2	PASS
			A3	PASS
			A4	PASS
Category C	Chilean jack mackerel, <i>Trachurus murphyi</i>	<5%	PASS	
Category C	Pacific Chub mackerel, <i>Scomber japonicus</i>	<5%	PASS	
Category D	Carrot squid lobster, <i>Munida Pleuroncodes monodon</i>	<5%	PASS	

Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category ¹	% of landings	Management	Category
Anchoveta	<i>Engraulis ringens</i>	Southern Peru	LC	95%	Ministry of Production (PRODUCE).	A
Chilean jack mackerel	<i>Trachurus murphyi</i>	Southern Peru	LC	<5%	Ministry of Production (PRODUCE).	C
Pacific Chub mackerel	<i>Scomber japonicus</i>	Southern Peru	LC	<5%	Ministry of Production (PRODUCE).	C
Carrot squid lobster, Munida	<i>Pleuroncodes monodon</i>	Southern Peru	LC	<5%	Ministry of Production (PRODUCE).	D
Species categorisation rationale						
<p>The catch composition has been taken from the data provided by the client in the application form.</p> <p>Catch composition has been assessed following the Marin Trust V2.0 criteria, therefore, following the catches reported, the non-target species are all represent in less than 5% and they have been assessed as category C when reference points were available and D for carrot squat lobster as there is no management plan for this species in the area.</p>						

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.

When considering the part of the stock that is distributed in Southern Peru, Fisheries management falls under the jurisdiction of the Vice-Ministry of Fisheries in the Ministry of Production (PRODUCE). From now on, in this report the Anchoveta stock is going to be considered the Peruvian stock and not the Chilean part of the stock. However, in some clauses Chilean references are used as a part of the stock assessment.

PRODUCE itself was created in 2002 by Peruvian Law number 27779. Responsibilities of the Vice-Ministry include the development and implementation of management plans, conducting fisheries research, establishing the regulatory framework for fisheries management, and the issuing and administering of regulations. Annual catch limits and technical measures that regulate the fishery are published on the PRODUCE website through Ministerial Resolutions (Resolución Ministeriales) and Decreto Supremos.

Therefore, there is an organisation responsible for managing the fishery and the stock **PASSES** Clause M1.1.

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

The Instituto del Mar del Peru (IMARPE) is a specialised Governmental technical agency with responsibility for conducting research necessary to ensure informed fisheries management decisions are taken at the ministerial level. IMARPE conduct stock assessments and recommend annual catch limits of the stock.

IMARPE provide regular reports on activity in the fishery which include, among other reports: **Informe Técnicos**: results of acoustic surveys; **Prospección biológico-pesquera**: stock assessments and advice on TAC's and **Reporte del Progamas Bitacora de Pesca**: observer reports and log sheet data.

After carrying out regular biannual hydroacoustic surveys, IMARPE release catch advice following set protocols (IMARPE, 2015):

- Estimation of stock size, structure and biomass using data from biannual acoustic surveys
- Projection of size structures under different scenarios (exploitation, growth and mortality, which will vary according to expected environmental conditions within the projection period)
- Elaboration of a decision table

When abundance is low and environmental conditions unstable, extra surveys are conducted. Discards are not directly recorded but incorporated into stock assessments indirectly via acoustic surveys and population length frequency data.

Therefore, there is an organisation responsible for collecting data and assessing the fishery, so the stock **PASSES** Clause M1.2.

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

The Fisheries Law No 25977 (Ley General de Pesca) contains 12 Titles and 90 Articles. Management objectives include ensuring sustainability of fisheries and of aquatic resources. Article 1 recognises fishing as a food and employment source which must be used wisely, maximising economic benefits while preserving biodiversity and the environment.

An ecosystem approach to fisheries management is in force, based on best available scientific evidence and including the consideration of economic and social aspects to fishing activities. A National Environmental Policy for ecosystem conservation was ratified in 2016, following Government’s formal acceptance of the Paris Agreement.

Further, every year IMARPE presents the “Plan Operativo Institucional” where main results of commercial stocks are presented (i.e. surveys results, landings, management modifications)

Therefore, fishery management organisations are publicly committed to sustainability, so the stock **PASSES** Clause M1.3.

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

PRODUCE Decreto Supremo N° 021-2008 (Article 3) gives Officials legal authority to determine the length of fishing seasons and TAC’s (el Límite Máximo Total de Captura Permissible (LMTCP)) based on IMARPE recommendations.

PRODUCE publishes lists of sanctions invoked and relevant laws, fines, and fishing suspensions on the ministerial website, as required by Regulations of the Organization and Functions of the Ministry of Production.

Regulations relevant to fisheries legislation include:

- Title XI Articles 76 – 83: Ley 25977 Ley General de Pesca (1998): List of Prohibitions, Infractions and Sanctions. All Sanctions are issued through PRODUCE Resolución Directorales.
- Chapter II Articles 103-107: Fisheries Inspectors: Competencies and obligations of fishing skippers

Article 9 of the Ley General de Pesca (Fisheries Law, 1998) No 25977 empowers PRODUCE to determine, based on available scientific evidence and socioeconomic factors, fishing quotas, management tools, fishing areas and seasons, the regulation of fishing effort and other technical measures to promote the preservation and rational exploitation of aquatic Resources.

In January 2019 PRODUCE published Protocol No. 054-2019-MP-FN which aims to establish procedures that must be developed to execute interdiction operations against alleged illegal fishing activities.

In 2020, the fishing activity was close to null, resulting in zero catches, with only one fishing season defined instead of the typical two fishing seasons (Espíndola 2021; IMARPE 2021). The quota uptake has been decreasing over time, and in 2019 only 18% of the catch limit was used by the fleets, with catches at 195,000 tonnes.

Therefore, fishery management organisations are legally empowered to take management actions, so the stock **PASSES** Clause M1.4.

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

Sociedad Nacional de Pesquería (SNP) is a non-profit organisation having as its mission statement to lead the development of fishing and aquaculture industries in Peru through fighting illegal activities and promoting the protection of the environment through sustainable fishing, good science and innovative practices.

SNP's objectives include representing the industry in Government fora and meetings and to facilitate cooperation with Government and Regional Departments that promote and develop the fishing and aquaculture industries in Peru.

SNP has developed an Ethical code in which article 7 is aimed at complaining with the decision-making process. The government and SNP have signed agreements to comply the decision-making processes in a transparent to provide timely solutions in fisheries matters. Therefore, SNP will sponsor and ensure that the Peruvian State, in accordance with these commitments, will facilitate consultation and the effective participation of the industry, fishing workers, fishermen and other institutions and organizations interested in decision-making process regarding the development of standards and policies related to fisheries management.

Since 2015 both IMARPE and PRODUCE are gradually improving transparency regarding the management of this fishery. IMARPE publishes daily landing records from industrial (IMARPE 2017).

There are several committees to represent all the stakeholders in the fisheries. The decision-making process is made publicly available and there is a consultation process through which fishery stakeholders are engaged in decision-making, so the stock **PASSES** Clause M1.5.

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

Annual catch limits and technical measures that regulate the fishery are published on the PRODUCE website. IMARPE provide regular reports on activity in the fishery which include, among other reports: Informe Técnicos: results of acoustic surveys; Prospección biológico-pesquera: stock assessments and advice on TAC's; Reporte del Progamas Bitacora de Pesca: observer reports and logsheet data. Local and international Press comment on IMARPE and PRODUCE activities and on the reporting of the state of Peru's fisheries and aquaculture operations. The different committees that represent SNP take part of meetings to agree management measures that are published as ministerial regulations.

The "Dirección General de Políticas y Desarrollo pesquero" uses different management rules to set up the TACs for each fishing season. The three conditions considered are detailed below:

- Catch level that would allow a biomass equivalent to the necessary for *MSY* ($B_{MSY} = 919$ thousand tons)
- Catch level corresponding to 80% of the *MSY*
- Catch level corresponding to *MSY*

With that in mind the exploitation rate will be defined at: 0.32; 0.36 and 0.46 respectively.

Decision-making processes respond to conflicts that can occurs in the fishery. Legislation has been timely taking into account to respond to general decisions, i.e. when closure has to be done because of the present of juveniles. The application of the S.D. 024-2016-PRODUCE allows to define the fishing areas with high incidence of juveniles. Depending on the percentage of juveniles, the area will be closed in up to 5 days. Therefore, a precautionary approach based on the best available information is followed when discussing the management strategy and IMARPE recommendations are taken into account.

These management strategies are applied and they are published and revised by IMARPE and the different committies. The 2020 protocol can be found in IMARPE website.

Therefore, there is a consultation process through which fishery stakeholders are engaged in decision-making and the process is transparent, with processes and results publically available.

Therefore, the decision-making process is transparent, with processes and results publicly available so the stock **PASSES** Clause M1.6.

References

Cahuin, S.M.; Cubillos, L. A.; Escribano, R. 2015. Synchronous patterns of fluctuations in two stocks of anchoveta *Engraulis ringens* Jenyns, 1842 in the Humboldt Current System. *J. Appl. Ichthyol.* 31, 45-50, ISSN 0175-8659.

<http://onlinelibrary.wiley.com/doi/10.1111/jai.12646/pdf>

PRODUCE Ministerial Order 044/2019: Peruvian and Longnose anchoveta assessments
<https://www.gob.pe/institucion/produce/normas-legales/259715-044-2019-produce>

IMARPE Reporting Evaluación del Plan Operativo (Landings data):
https://www.transparencia.gob.pe/enlaces/pte_transparencia_enlaces.aspx?id_entidad=103&id_tema=5&ver=#.YMIGNPnduUk

PRODUCE Press Release (2019) on by-catch in the anchoveta fishery:
<https://www.gob.pe/institucion/produce/noticias/27097-produce-desembarque-del-sector-pesca-crecio-7-5-en-febrero-por-mayor-captura-de-pota-jurel-y-caballa>

SPRFMO 2019. 7th SPRFMO Scientific Committee meeting.
<https://www.sprfmo.int/meetings/scientific-committee/7th-sc-2019/>

IMARPE, 2007: Species characteristics South American Pilchard *Sardinops sagax* 6pp
http://www.imarpe.gob.pe/imarpe/archivos/articulos/imarpe/recursos_pesquerias/adj_pelagi_adj_pelagi_sardi_mar07.pdf

Fishsource Anchoveta Chilean Central-Southern
https://www.fishsource.org/stock_page/1380

Mapping South America's fish stock boundaries: Christopher M. Free Sustainable Fisheries Group UC Santa Barbara:
<https://marine.rutgers.edu/~cfree/mapping-south-american-fish-stock-boundaries/>

PRODUCE homepage: <https://www.gob.pe/produce>

PRODUCE Plataforma digital Cierre de 61 zonas para la conservación del stock de Anchoveta Enero2020.
<https://www.gob.pe/institucion/produce/noticias/77881-produce-realizo-61-cierres-preventivos-de-zonas-de-pesca-para-favorecer-conservacion-de-la-anchoveta>

Peruvian anchoveta FIP Fishery Progress: <https://fisheryprogress.org/fip-profile/peruvian-anchoveta-industrial-purse-seine>

IMARPE Homepage: <http://www.imarpe.gob.pe/imarpe/>

IMARPE (March 2015) Protocolo "Estimación de la Captura Total Permissible del Stock Sur de la Anchoveta Peruana 3pp
http://www.imarpe.gob.pe/imarpe/archivos/informes/imarpe/protocolo_captu_stok_anchu_sur.pdf

General Fisheries Law No 25977 <http://extwprlegs1.fao.org/docs/pdf/per1377.pdf>

Peru approves new innovative environmental policies:
<https://www.forest-trends.org/blog/peru-approves-new-innovative-environmental-policies/> PRODUCE Resolución Directoral N° 04985-2018-PRODUCE/DS-PA (Fines applied) https://cdn.www.gob.pe/uploads/document/file/203422/97443_1.pdf

PRODUCE Protocol (No. 054-2019-MP-FN) Combat IUU activities:
http://cedepesca.net/wp-content/uploads/2017/05/DS-005-2017-PRODUCE_ROP-anchoveta-CHD.pdf

Sociedad Nacional de Pesquería (SNP) Mission Vision Statement, Summary 2019 First anchoveta season:
<https://www.snp.org.pe/mision-y-vision/>

PRODUCE Organigramme (2017) Discreto Supreme No 009-2017:
<https://cdn.www.gob.pe/uploads/institucion/orgchart/000/000/055/organigrama.pdf>

Elaboración de la Tabla de Decisión para la determinación del Límite Máximo de Captura Total Permissible por temporada de pesca en la pesquería del Stock Norte-Centro de la anchoveta peruana. 2020
<https://www.gob.pe/institucion/imarpe/informes-publicaciones/1202194-elaboracion-de-la-tabla-de-decision-para-la-determinacion-del-limite-maximo-de-captura-total-permissible-por-temporada-de-pesca-en-la-pesqueria-del-stock-norte-centro-de-la-anchoveta-peruana>

Management Strategy Evaluation for the anchoveta fishery. Ray Hilborn and Ricky Amoroso .School of Aquatic and Fishery Sciences University of Washington, December 2019.

IMARPE. 2021. Situación de la anchoveta disponible en la región sur del mar peruano y perspectivas de explotación para la primera temporada de pesca de 2021. 14 pp.
<https://cdn.www.gob.pe/uploads/document/file/1893073/Informe-correspondiente-Oficio-009-2021-IMARPE-DEC.pdf>

Espíndola, F. R. 2021. Segundo informe. Convenio de Desempeño 2020. Estatus y posibilidades de explotación biológicamente sustentable de anchoveta y sardina española entre la Región de Arica y Parinacota a la Región de Antofagasta, año 2021. Subsecretaría de Economía y EMT. 112 pp. IFOP.

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
<p>M2.1 There is an organisation responsible for monitoring compliance with fishery laws and regulations.</p> <p>The implementation and enforcement of fisheries laws and regulations is one of the stated functions of the Ministry of Production, through the Directorate General of Supervision and Control (DGSF, Decreto Supremo No 009-2017 PRODUCE) although landings are also monitored and recorded by the international surveillance company SGS. These third-party operators verify landing operations at 134 designated landing sites.</p> <p>DGSF publishes and regularly updates a list of vessels prohibited from operating on the fishery, and also lists a significant number of 'featured inspections' and prosecutions on its website. A recent prosecution reported involved illegal landing of anchoveta. There are at any one time up to 650 inspectors conducting daily control operations across Peru during periods of heavy fishing activity.</p> <p>Monitoring and compliance regarding discards and zonal invasions (industrial vessels operating within 5nm from the coastline) are expected to increase with the electronic log system and mandatory positioning system now on board in all fleets. Most infractions relate to excess of juveniles onboard or fishing without prior notification.</p> <p>Therefore, there is an organisation responsible for monitoring compliance with fishery laws and regulations and the fishery PASSES Clause M2.1.</p> <p>M2.2 There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken.</p> <p>PRODUCE publishes lists of sanctions invoked and relevant laws, fines, and fishing suspensions on their website, as required by Regulations of the Organization and Functions of the Ministry of Production. Other regulations relevant to the application of fisheries sanctions include:</p> <ul style="list-style-type: none"> • Ley 25977 Ley General de Pesca (Artículos del 76° al 83°). • Decreto Supremo 012-2001-PE Reglamento de la Ley General de Pesca (Artículos del 126° al 150°). • Decreto Supremo 016-2007-PRODUCE Reglamento de Inspecciones y Sanciones Pesqueras Acuícolas: Powers of inspectors during inspections, including issuing fines for non-compliances. • Decreto Supremo No 024-2016-PRODUCE: Measures (fines, withdrawal of licences) to strengthen control and inspection. <p>Therefore, there is a framework of sanctions which are applied when laws and regulations are discovered to have been broken so the fishery PASSES Clause M2.2.</p>		

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

In 2020, alleged estimates for undeclared anchoveta catches by fishing companies was 10%, confirming that the data gathering system needed improvement. One of the goals of the FIP in progress is to organize available data gathered by industrial fishing vessels and encourage further technological innovation and development in order to allow for the more efficient assessment and monitoring of the ecosystem.

From October 2018 the Government made available VMS data from the fleets to the Global Fishing Watch (GFW) application. At the time Peru were the first Latino American Country to contribute these data to the GFW platform which has as its goal to improve transparency in fishing operations and reduce IUU fishing worldwide. Vessels from industrial fleets were included.

The fishery is closed to new vessels, there is 24-hour monitoring of all 134 designated landing sites to ensure that only those vessels with a permit are allowed to land catch.

There is substantial evidence that these mechanisms have been successful in the limiting of fishing effort, the most important of which is that seasonal landings have not exceeded quotas. In the last three fishing season set TAC has not been exceeded by reported landings (2018 set TAC 1,070,000 t Landings 971,000t; 2019 set TAC 1,080,000 Landings 719,900t & 2020 set TAC 435,000 Landings 271,900 Tonnes).

Most infractions relate to excess of juveniles onboard or fishing without prior notification.

Therefore, there is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing so the fishery **PASSES** Clause M2.3.

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 are required by law to operate a Satellite Tracking System (SISESAT), designed to ensure they remain further than 5nm from the coast. In 2016, a mobile app was introduced by DGSF and incorporated into the SISESAT system. PRODUCE states that the app allows accredited inspectors check location, speed, direction and distance of fishing vessels to coast with more accuracy than traditional satellite systems. Mandatory vessel monitoring systems (VMS) are in place, as required by PRODUCE Decrees Nº10/2010, Nº5/2012 and Nº01/2013. The electronic/radio log is required as well for the fishery (PRODUCE 2016a). There is 24-hour monitoring of all 134 designated landing sites to ensure that only those vessels with a permit are allowed to land catch.

Therefore, compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS so the fishery **PASSES** Clause M2.4.

References

DECRETO SUPREMO Nº 016-2007-PRODUCE: el Reglamento de Inspecciones y del Procedimiento Sancionador de las Infracciones en las Actividades Pesqueras y Acuícolas:

<http://www2.produce.gob.pe/dispositivos/publicaciones/2007/octubre/ds016-2007-produce.pdf>

Mendo, J.; Wosnitza-Mendo, C. Reconstruction of total marine fisheries catches for Peru: 1950-2010. Fisheries Centre The University of British Columbia Working Paper Series Working Paper #2014 – 21. 24 pp.

<http://www.seaaroundus.org/doc/publications/wp/2014/Mendo-et-al-Peru.pdf>

PRODUCE Press Release (Oct 2019): Perú ha demostrado liderazgo global en compartir sus datos de vigilancia pesquera:

<https://www.gob.pe/institucion/produce/noticias/61260-produce-peru-ha-demostrado-liderazgo-global-en-compartir-sus-datos-de-vigilancia-pesquera>

PRODUCE 2016a. Decreto Supremo Nº 024-2016. Establece medidas para fortalecer el control y vigilancia de la actividad extractiva para la conservación y aprovechamiento sostenible del recurso anchoveta. Lima, 15 de noviembre de 2016.

http://busquedas.elperuano.com.pe/download/url/decreto-supremo-que-establece-medidas-para-fortalecer-el-con-decreto-supremo-n-024-2016-produce-1453690-4	
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		Anchoveta <i>Engraulis ringens</i>	
A1	Data Collection - Minimum Requirements		
	A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	Yes
	A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	Yes
Clause outcome:			PASS
A1.1 Landings data are collected such that the fishery-wide removals of this species are known.			
<p>IMARPE provide regular reports on fishery activities in the fishery including Informe Técnicos: results of acoustic surveys; Prospección biológico-pesquera: stock assessments and advice on TAC's; Reporte del Progamas Bitacora de Pesca: observer reports, daily landings data. Data collected include dates and location of catch, plus size frequency sampling. Logbooks are publicly available in IMARPE website (Figure 1)</p>			
<p>Figure 1. Landings of <i>Engraulis ringens</i> by fishing season from 1996 to 2020-II in the Southern region of EEZ Peru. Source: IMARPE,2021.</p>			
Therefore, landings data are collected such that the fishery-wide removals of this species are known so the fishery PASSES Clause A1.1.			
A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.			

IMARPE carries out two acoustic surveys every year to evaluate the stock status of the species. The results showed in January 2021 report include data from 2019 and 2020 surveys and those results have been considered to draft this report.

The surveys carried out in the South Region of the Peruvian EZZ observed a biomass available of 940 thousand t in the summer and 1.09 million t in the winter, highlighting that in six of the last eight observations made from 2017 to the present, a biomass close to 1 million t. According to the data collected during 2020, the presence of individuals juveniles in the region was important throughout the year. During the summer, the acoustic biomass of the anchovy was distributed in areas closer to the coast, while in the spring the distance from the coast and the dispersion level of the anchovy was much more apparent. The main conclusion with the surveys data collected and according to the results of the Surplus Production Model, the biomass of the anchovy available in the South Region is above that required for the Maximum Sustainable Yield (*BMSY*), while the level of exploitation applied on this biomass in recent years is below the reference level (*FMSY*).

Therefore, sufficient additional information is collected to enable an indication of stock status to be estimated so the fishery **PASSES** Clause A1.2.

References

IMARPE (March 2015) Protocolo “Estimación de la Captura Total Permissible del Stock Sur de la Anchoveta Peruana 3pp
http://www.imarpe.gob.pe/imarpe/archivos/informes/imarpe/protocolo_captu_stok_anchu_sur.pdf

Sociedad Nacional de Pesquería (SNP) Mission Vision Statement, Summary 2019 First anchoveta season:
<https://www.snp.org.pe/mision-y-vision/>

PRODUCE. 2021. Resolución Ministerial no 00074-2021-PRODUCE. Autorizan el inicio de la Primera Temporada de Pesca del recurso anchoveta y anchoveta blanca en área del dominio marítimo correspondiente al período enero - junio 2021 y establecen el Límite Máximo Total de Captura Permissible de la Zona Sur.

Espíndola, F. R. 2021. Segundo informe. Convenio de Desempeño 2020. Estatus y posibilidades de explotación biológicamente sustentable de anchoveta y sardina española entre la Región de Arica y Parinacota a la Región de Antofagasta, año 2021. Subsecretaría de Economía y EMT. 112 pp. IFOP.

IMARPE. 2021. Situación de la anchoveta disponible en la región sur del mar peruano y perspectivas de explotación para la primera temporada de pesca de 2021. 14 pp.
<https://cdn.www.gob.pe/uploads/document/file/1893073/Informe-correspondiente-Oficio-009-2021-IMARPE-DEC.pdf>

Links

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

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

A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species.

Stock assessments are published annually in IMARPE Reports named **Situación de la anchoveta disponible en la región sur del mar peruano y perspectivas de explotación para la primera temporada de pesca** based on acoustic surveys undertaken in March, April and November each year. The data (landings and discards) are collected and reported to IMARPE as logbooks are mandatory for all the fleet.

Therefore, a stock assessment is conducted at least once every 3 years and considers all fishery removals and the biological characteristics of the species so the fishery **PASSES** Clause A2.1.

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

In January 2021 report, the results of the model indicate that the available anchovy biomass in the South Sea Region Peruvian is highly variable and that, in general terms, fluctuates around the biomass necessary for *MSY*, a figure estimated at 916 thousand tons. Similarly, the model suggests that since 2008, the fishing mortality that has been applied to the stock, already either in terms of rate (*F*) or absolute catches, it is below that necessary for the *MSY* (Figure 1).

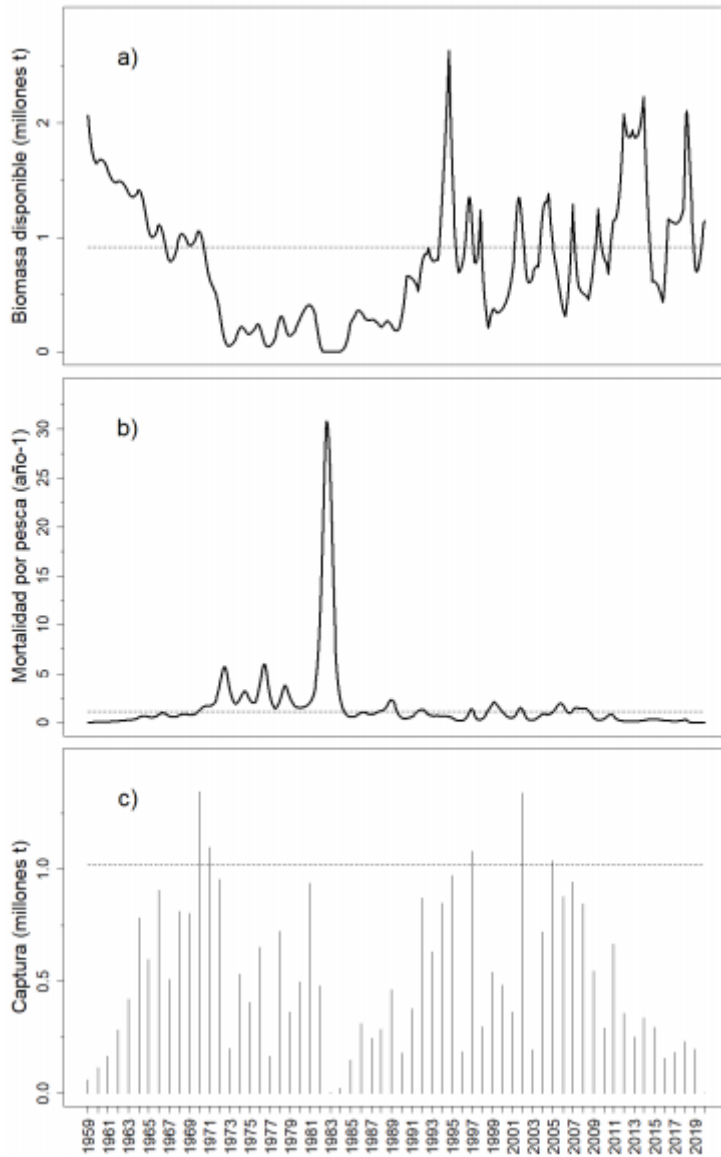


Figure 2 . Results of the Surplus Production Model: a) Biomass available in the South Region of the sea Peruvian from 1959 to 2020 and relationship with the *BMSY*; b) fishing mortality rate applied to the biomass and its relationship with *FMSY*; and c) annual landings and their relationship to *MSY*. (IMARPE 2021).

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

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

Using data from the acoustic surveys a decision table is provided by IMARPE to PRODUCE to facilitate estimating the sustainable level of fishing mortality based on announced quotas. The assumption is taken in three different scenarios depending on environmental conditions.

Therefore, the assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status so the fishery **PASSES** Clause A2.3

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

Workshop are carried out between Chile and Peru. Chile has implemented internal peer review and their stock assessments are peer reviewed. As a part of this collaboration, data are reviewed to define better tools that allow the assessment of this shared stock.

Following presentation of results of the MSE, IMARPE have been requested to add more harvest strategies and operating models and to generate more discussion with stakeholders on improving the quality of stock assessments.

The assessment is subject to internal or external peer review so the fishery **PASSES** Clause A2.4.

A2.5 The assessment is made publicly available.

In March 2015, IMARPE published a methodology for generating total permissible catch recommendations. Stock assessments are published annually in IMARPE Reports *Situación del Stock Sur de la Anchoqueta Peruana based on acoustic surveys undertaken in Mar-April and November each year*. Based on these stock assessments PRODUCE issue online Resolución Directorales (RD) or Resolución Ministeriales (RM) which allocate each quota (first and second fishing season) to the fleet.

When considered alongside regular reports posted online summarising the outcomes of observer reports and daily analyses of logsheet data (Reporte del Progammas Bitacora de Pesca) the process appears to now be fairly transparent.

Therefore, the assessment is made publicly available so the fishery **PASSES** Clause A2.5.

References

IMARPE Reports (2013-2017) Situación del Stock Norte-Centro de la Anchoqueta Peruana: PRODUCE. 2021. Resolución Ministerial no 00074-2021-PRODUCE. Autorizan el inicio de la Primera Temporada de Pesca del recurso anchoqueta y anchoqueta blanca en área del dominio marítimo correspondiente al período enero - junio 2021 y establecen el Límite Máximo Total de Captura Permisible de la Zona Sur.

Espíndola, F. R. 2021. Segundo informe. Convenio de Desempeño 2020. Estatus y posibilidades de explotación biológicamente sustentable de anchoqueta y sardina española entre la Región de Arica y Parinacota a la Región de Antofagasta, año 2021. Subsecretaría de Economía y EMT. 112 pp. IFOP.

IMARPE. 2021. Situación de la anchoqueta disponible en la región sur del mar peruano y perspectivas de explotación para la primera temporada de pesca de 2021. 14 pp.
<https://cdn.www.gob.pe/uploads/document/file/1893073/Informe-correspondiente-Oficio-009-2021-IMARPE-DEC.pdf>

Links

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

A3	Harvest Strategy - Minimum Requirements	
	A3.1	There is a mechanism in place by which total fishing mortality of this species is restricted. Yes

A3.2	Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.	Yes
A3.3	Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).	Yes

Clause outcome: PASS

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

In Peru, IMARPE issues independent scientific advice to the Ministry of Production (PRODUCE), in charge of fisheries management. In order to monitor the resources and compliance of fishing fleets, four programs are in place: the logbooks program (Programa Bitácoras de Pesca, PBP) with onboard observers since 1996, to cover the fleet behavior, species and size composition of catches, discards, and interactions with other species and the habitat; gathering information at the landing ports; the satellite vessel tracking system (SISESAT); and scientific surveys (IMARPE 2019). A protocol determines the way the TAC should be determined for the southern stock (IMARPE 2015).

A global TAC is advised and then split to each fishing season. The parameters obtained in the stock assessment include BMSY at 916,000 tonnes, FMSY at 1.118/year and an MSY catch level at 1,024,000 tonnes. Then, IMARPE gives advice on different annual exploitation rate (E) scenarios as can be seen in the below table (IMARPE 2021).

Table 1. Different exploitation rates scenarios considered in IMARPE 2021 report for Anchoveta in the Southern stock. Source IMARPE

Exploitation rate (E)	Catch limit ('000 tonnes)	Notes
0.32	735	To reach a catch level that would allow biomass equivalent to MSY (B_{MSY} at 919,000 tonnes; assumed as the precautionary approach)
0.36	818	For a catch level correspondent to 80% of MSY
0.46	1,029	For a catch level correspondent to MSY

Therefore, there is a mechanism in place by which total fishing mortality of this species is restricted so the fishery **PASSES** Clause A3.1

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.

In recent years for which data are available, landings have been at or below the advised level. Fishery removals are reduced to reflect estimated biomass and cease entirely when the stock falls below a certain level. Discussions are ongoing with IMARPE and SNP, through implementation of recommendations of a recent workshop on Management Strategy Evaluation (MSE) to generate more discussion on improving the quality of stock assessments and providing greater transparency on how harvest control rules are developed. Data have shown that the mortality have reported landings below TAC: 2018 set TAC 1,070,000 t Landings 971,000t; 2019 set TAC 1,080,000 Landings 719,900t & 2020 set TAC 435,000 Landings 271,900 Tonnes).

Therefore, total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment so the fishery **PASSES** Clause A3.2.

A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point
 As an example of the control of the removals and the implementation of the harvest control rules, i.e. in the last stock assessment published in 2021, IMARPE recommends different the exploitation rate should not exceed MSY and the lower one is adopted.

Therefore, commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy so the fishery **PASSES** Clause A3.3.

References

IMARPE Reports (2013-2017) Situación del Stock Norte-Centro de la Anchoqueta Peruana: PRODUCE. 2021. Resolución Ministerial no 00074-2021-PRODUCE. Autorizan el inicio de la Primera Temporada de Pesca del recurso anchoqueta y anchoqueta blanca en área del dominio marítimo correspondiente al período enero - junio 2021 y establecen el Límite Máximo Total de Captura Permisible de la Zona Sur.

Espíndola, F. R. 2021. Segundo informe. Convenio de Desempeño 2020. Estatus y posibilidades de explotación biológicamente sustentable de anchoqueta y sardina española entre la Región de Arica y Parinacota a la Región de Antofagasta, año 2021. Subsecretaría de Economía y EMT. 112 pp. IFOP.

IMARPE. 2021. Situación de la anchoqueta disponible en la región sur del mar peruano y perspectivas de explotación para la primera temporada de pesca de 2021. 14 pp.

<https://cdn.www.gob.pe/uploads/document/file/1893073/Informe-correspondiente-Oficio-009-2021-IMARPE-DEC.pdf>

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

Stock Status - Minimum Requirements

A4	A4.1	<p>The stock is at or above the target reference point, OR IF NOT:</p> <p>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:</p> <p>The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.</p>	Yes
Clause outcome:			PASS
<p>A4.1 The stock is at or above the target reference point, OR IF NOT:</p> <p>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:</p> <p>The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.</p> <p>The single biological stock spreads from the Northern Chile region to Southern Peru. Two stock assessments are performed: the Peruvian, considering only the Peruvian component of the fishery; the Chilean, compiling information from the Peruvian part and the Northern Chilean region. The Peruvian single unit has been commented above and it is currently in the last stock assessment above biomass reference points.</p> <p>Considering the whole stock, it was considered as underexploited and not in an overfishing situation. The last appreciation of the stock (the second assessment of the fishing year, corresponding to the second semester) states that the spawning stock is at 1,080,000 tonnes, 74% above the respective MSY reference point; fishing mortality is at 0.23, below the target reference point (=MSY) (Espíndola 2021; CCT-PP 2021).</p> <p>Considering the annual perspective as available in (Espíndola 2021) and as used to determine stock health scores, the spawning stock is 62% above the respective MSY reference point; fishing mortality is at 0.24, below the target reference point (=MSY)</p> <p>The reference points were defined by the CCT-PP in 2015 (CCT-PP nº1/2015), established by law (Res. Ex. 291/2015) and adopted to determine the advised TAC for 2021: Blim is 25% of B0; both at MSY, the proxy for F is at F55%SSB and B at 55% of SSB or 50% of B0 (CCT-PP 2020).</p> <p>Therefore, the stock is at or above the target reference point so the fishery PASSES Clause A4.1</p>			
<p>References</p> <p>CCT-PP. 2021. Acta de reunión. Segunda sesión del Comité CientíficoTécnico de Pequeños Pelágicos, año 2021. 11 pp. Subpesca. https://www.subpesca.cl/portal/616/articles-110469_documento.pdf</p> <p>Espíndola, F. R. 2021. Segundo informe. Convenio de Desempeño 2020. Estatus y posibilidades de explotación biológicamente sustentable de anchoveta y sardina española entre la Región de Arica y Parinacota a la Región de Antofagasta, año 2021. Subsecretaría de Economía y EMT. 112 pp. IFOP.</p> <p>CCT-PP. 2020. Acta de la sexta sesión del Comité Científico Técnico de Pesquerías de Pequeños pelágicos, año 2020. 19 pp. https://www.subpesca.cl/portal/616/articles-108975_documento.pdf</p> <p>IMARPE. 2021. Situación de la anchoveta disponible en la región sur del mar peruano y perspectivas de explotación para la primera temporada de pesca de 2021. 14 pp. https://cdn.www.gob.pe/uploads/document/file/1893073/Informe-correspondiente-Oficio-009-2021-IMARPE-DEC.pdf</p>			
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		Chilean jack Mackerel (<i>Trachurus murphyi</i>)	
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 which 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.

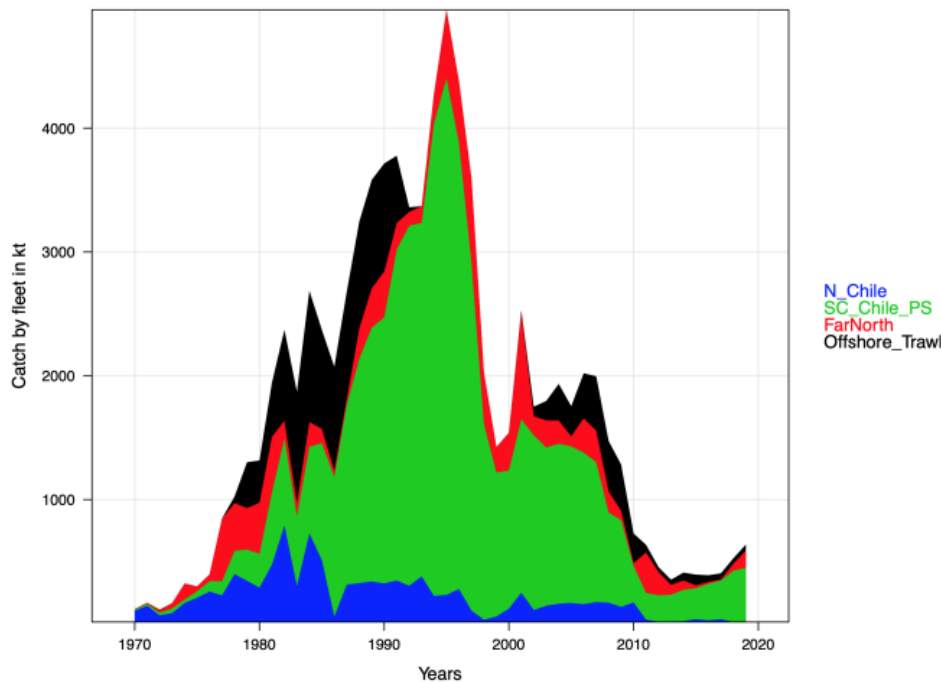


Figure 1. Catch of Jack mackerel by fleet. Green is the SC Chilean fleet, black is the offshore trawl fleet, red is the far north fleet, and blue in the northern Chilean fleet. SOURCE: SPRFMO-SC7

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 2).

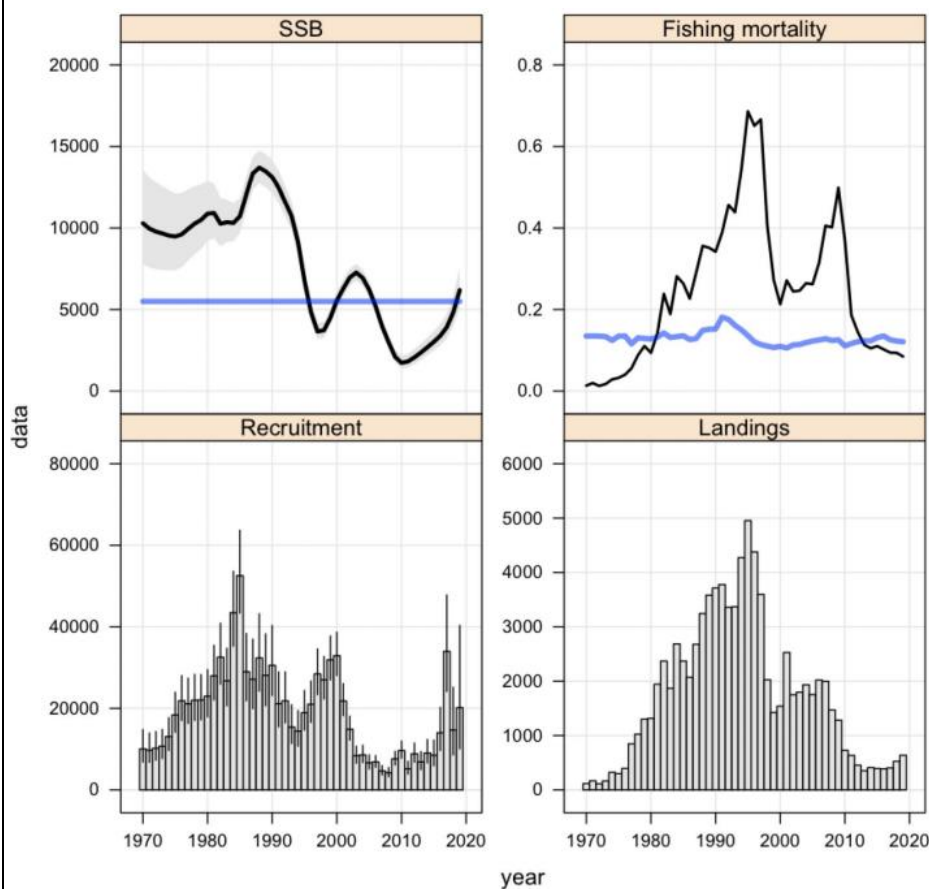


Figure 2. Model 1.00—single-stock hypothesis—summary estimates over time showing spawning biomass (kt; top left), recruitment at age 1 (millions; lower left) total fishing mortality (top right) and total catch (kt; bottom right). Blue lines represent the provisional B_{MSY} (upper left) and dynamic estimates of F_{MSY} (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

Species Name		Pacific Chub mackerel <i>Scomber japonicus peruanus</i>	
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
<p>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.</p> <p>Fishery-dependent data are collected when catch is landed and on-board vessels at sea and include effort data. Landings data are collected by the international surveillance company SGS, and include date and location of catch, plus size frequency sampling.</p> <p>Consequently, fishery removals of the species in the fishery under assessment are included in the stock assessment process so the stock complex PASSES clause C1.1.</p> <p>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.</p> <p>IMARPE Report No 1071-2019 (Stock situation and perspectives for the 2020 Pacific Chub Mackerel fishery) was released in Dec 2019. The maximum biomass (2019) from surveys was in October (791,000t), an increase of 58% by volume when compared with values calculated from the March surveys and the highest values obtained since the summer surveys of 2017.</p> <p>However, no new stock assessment has been published yet the RESOLUCIÓN MINISTERIAL N° 00016-2021-PRODUCE has defined the TAC for Pacific Jack Mackerel (<i>Scomber japonicus peruanus</i>) for the fishing season 2021 at 68,081t. Following the last stock assessment, these removals would not exceed the reference point of 50% that $SSB_{2021} < SSB_{2020}$.</p> <p>In IMARPE 2019 report the total biomass was 20% higher than the estimated biomass for previous years. SSB was estimated at 10 % and fishing mortality showed a slightly decreasing. Further, IFOP has estimated that $B/BMSY = 1.81$ in 2020 for this stock in Chile EEZ.</p> <p>Therefore, the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy) so the stock complex PASSES clause C1.2.</p>			
References			
<p>El Peruano - Establecen límites de captura de los recursos Jurel y Caballa para el período 2021 y dictan disposiciones - RESOLUCION MINISTERIAL - N° 00016-2021-PRODUCE - PODER EJECUTIVO - PRODUCE</p> <p>https://www.fishsource.org/stock_page/1647</p>			
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	Red squat lobster, <i>Pleuroncodes monodon</i>	
	Productivity Attribute	Value	Score
	Average age at maturity (years)	No data	-
	Average maximum age (years)	No data	-
	Fecundity (eggs/spawning)	1,000 to 50,000 eggs	1
	Average maximum size (cm)	43.9 mm CL	1
	Average size at maturity (cm)	22.8-32 mm CL	1
	Reproductive strategy	carry eggs on their pleopods for about six months between April and December of each year	2
	Mean trophic level	feeds by filtering suspended particles near the seafloor <50,000 to transfer- Low risk as filter feeder	1
	Average Productivity Score		1.2
	Susceptibility Attribute	Value	Score
	Overlap of adult species range with fishery	Less than 25 % overlaps with the fishery	1
	Distribution	Not used	-
	Habitat	Benthic	-
	Depth range	50-900m	3
	Selectivity	Medium overlap	2
	Post-capture mortality	Most dead	3
	Average Susceptibility Score		
	PSA Risk Rating (From Table D3)		PASS
	Compliance rating		PASS
References			
Growth parameters estimated for <i>Pleuroncodes monodon</i> by various authors. Source: Bucarey et al., 2015b			

Source: Duceay et al., 2013

Sexo	L_{∞}	k	t_0	Zona	Referencia
Machos	60.00	0.196	1660,00	Centro-sur	Miranda (1965)
Ambos	47.81	0.109		Centro-sur	Bustos <i>et al.</i> (1982)
Ambos	52.60	0.220	-1.425		Rodríguez <i>et al.</i> (1987)
Hembras	59.92	0.244	-0.066		
Machos	59.95	0.245	-0.056	Centro-sur	Arana <i>et al.</i> (1990)
Ambos	59.95	0.245	-0.056		
Hembras	55.00	0.260	-0.056	Centro-sur	Peñailillo & Henríquez (1990)
Machos	59.00	0.230	-0.056		
Hembras	44.55	0.179	-0.510	Centro-sur	Roa (1993)
Machos	50.45	0.197	-0.510		
Hembras	38.36	0.375	-0.328	Cañón del Biobío	Roa & Tapia (1998)
Machos	40.78	0.371	-0.240		
Hembras	41.30	0.199	-0.510	Pichilemu-Achira	Roa & Tapia (1998)
Machos	50.04	0.200	-0.510		
Hembras	47.10	0.157		III Región	Quiroz <i>et al.</i> , 2006
Machos	47.53	0.164			
Hembras	50.34	0.121		IV Región	Quiroz <i>et al.</i> , 2006
Machos	46.40	0.167			



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.
	F1.2	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.
Clause outcome:		PASS

F1.1 Interactions with ETP species are recorded.

Specific information about the impacts of the fishery on ETP species is not available. A similar fishery (industrial Peruvian anchoveta Northern-Central, operating with purse-seines) has two onboard observer programs that report ETP interactions for both seasons of the year, a privately owned SALVAMARES program where crew members are trained as observers (CeDePesca 2019; CeDePesca 2019b) and a government-led onboard observer program (IMARPE 2019a). In general terms, both report a large number of interactions but low mortality rates among ETP species. Many of these species are part of the national Red list (MINAGRI 2014) as well as protected from taking, commerce, or consumption - marine mammals (Law No. 26585), pinnipeds (Law No. 00103-76-PE), sea turtles (D.S 026-2001-PE), and seabirds (D.S. 034-2004-AG). There is a national observer program in place for the pelagic fisheries which reports incidental catches however, it is not clear if those incidental catches recorded are all the possible interactions with ETPs species. PRODUCE resolutions do not specify what is considered incidental catches and there is no evidence of recording ETPs.

As there is no specific data for the southern stock the information provided for the Northern stock is considered to assess those clauses corresponding to ecosystem impacts as the fisheries operate in the same conditions and ETPs in the area are similar in distribution. As part of the commitments to the FIP project for the Northern Central stock, a private observer programme has been developed. The "SALVAMARES" Observer Programme is a private sector initiative to provide information on fleet interaction with protected and endangered species and those caught as incidental by-catch. All interactions with ETPs are recorded in a logbook that is reported to IMARPE but exclusively from the vessels that are part of SNP which are involved in the SALVAMARES project. Therefore, it is recommended that information coming from the vessel targeting anchoveta that are not included in the private initiative should be improved.

Therefore, interactions with ETP species are recorded and the fishery **PASSES** Clause F1.1.

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

As mentioned above the information used by the assessor to assess ETPs is from a similar fishery in the Northern-Central area. The information provided below is, therefore, correspondent to the similar fishery operating in the Northern-central region of Peru and the two programs carried out in this fishery, IMARPE observer program and SALVAMARES private initiative conducted by CeDePesca.

The latest "SALVAMARES" report (2019) posted on the CeDePesca website summarised information from a total of 48 observed trips (9.8% of total trips undertaken from 28 April – 01 August 2019).

Interactions with seabirds, marine mammals and reptiles were quantified. Interactions reported in the programme do not mean necessarily that there is no harm or mortality for such species and, indeed, such impacts occur with low frequency.

Regarding interactions with marine mammals, the mortality rate was very low. In a total of 3,146 set observed the total number of common dolphin (*Delphinus capensis*) observed was 12 with one death, 7 released alive and the rest which escaped themselves.

A total of 7,612 Southern fur seals (*Arctocephalus australis*) were observed among which 2 died and the rest which escaped themselves. South American sea lions (*O. flavescens*) were also observed in high percentage related to other marine mammals. A total of 125,306 sea lions were observed and 53 deaths were reported; 1664 were released alive and the rest of the observed sea lions escaped themselves with no harm reported.

Regarding sea birds, the results from the projections used for the whole fleet indicate that interactions were negligible. The species with higher percentage of sightings were the Peruvian booby (*Sula variegata*), the blue-footed booby (*Sula nebouxii*), the Peruvian pelican (*Pelecanus thagus*) and the guanay cormorant (*Phalacrocorax bougainvillii*).

Analysing each population, there is no substantial evidence that fishery have significant negative impacts. The population size of blue footed booby population is around 2 million. In the case of Peruvian boobies, of a total of 149,452 individuals observed, 398 died during the fishing operations, which represents approximately 0.3 % of total individuals observed.

A total of 100 Peruvian Pelicans were caught but released alive from 115,554 individuals observed, pelican populations are in increasing trend in the area and the mortalities from the fleet do not exceed 0.02 % of the individuals observed.

A total of 178,495 guanay cormorant (*Phalacrocorax bougainvillii*) were observed among which 809 deaths were reported representing 0.45% of the total. Total population of this species is estimated at 3.7 million individuals. CeDePesca report (2019) "Ficha de impacto de la pesquería de anchoveta sobre especies de by-catch y protegidas" has shown that indirect fishery impact could be a reason of decreasing their population because food limitation rather than the mortalities caused by fishing operations. Nonetheless, an estimation consumption of anchoveta by these species has been calculated and considered in perdition models, therefore, although it is still a challenge for the fishery to provide a higher observer programme coverage that will allow a better estimation of direct fishery impacts, the mortalities reported are low enough not to represent a significant negative impact (Birdlife international 2018).

For many other species, identification to species level was not possible by the Salvamares, and they were identified to family level, such as albatross, tern etc.

In relation to marine reptiles, two species of turtle interacted with the fishery, the Olive Ridley turtle (*Lepidochelys olivacea*), and the Green turtle (*Chelonia mydas*). All the individuals were released alive.

Therefore, there is no substantial evidence that the fishery has a significant negative effect on ETP species and it **PASESS** Clause F1.2

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

There are additional measures in place to minimise the impacts on ETPs species since there is a FIP project in place. A release-kit and training program are being rolled out. Also, crew of 48 vessels have been trained to identify ETPs species, mostly seabirds, under the SALVAMARES programme and to report correctly the interactions with those species classified under this category.

Efforts taken to protect ETP species include the establishment of three major Marine Protected Areas (MPAs), covering a total area of 6,305km², the National Reserve System of Guano Islands, Isles and Capes; the Paracas National Reserve; and the San Fernando National Reserve. These areas correspond to IUCN category VI protected areas and represent important refuges for seabirds and marine mammals. The aim of the regulation is to protect coastal habitats and breeding zones for several species. Recently, in designated areas, a permanent spatial closure of 3nm along the Peruvian coastline for all fleet was established. Further, seasonal fishing restrictions are in place to protect juveniles and also breeding seasons for seabirds.

Another threat posed by the fishery to ETP species is the key role of the species in the ecosystem since anchoveta is an important prey for a range of ETP species. In their stock assessment reports IMARPE highlight the difficulties of predicting environmental variability due to el Niño and other events and note that focus should be on preservation of the resilience of key species in the ecosystem, such as anchoveta. In the report “*Ficha de impacto de la pesquería de anchoveta sobre especies de by-catch y protegidas*” estimation of consumption of each species have been analysed to guarantee the tonnes needed by dependant predators are considered when a TAC is allocated every fishing season.

Therefore, there are measures in place to minimise mortality of ETP species and the fishery **PASSES** Clause F1.3.

References

Report No 3 (2019 12pp) PROGRAMA “SALVAMARES” Onboard observer reports: https://cedepesca.net/wp-content/uploads/2020/01/2019-10-16_Report-of-the-Private-Observer-Program-on-board.pdf

Ficha de impacto de la pesquería de anchoveta sobre especies de by-catch y protegidas. http://cedepesca.net/wp-content/uploads/2018/04/CeDePesca_Fichas-de-impacto-de-la-pesquer%C3%ADa-de-anchoveta-2017-11-29.pdf

CeDePesca. 2019a. Programa “SALVAMARES” del Proyecto de Mejora de la Pesquería de Anchoveta Peruana CHI Temp 2019-I.

CeDePesca. 2019a. Programa “SALVAMARES” del Proyecto de Mejora de la Pesquería de Anchoveta Peruana CHI Temp 2019-II

BirdLife International. 2018. *Sula neboxii*. The IUCN Red List of Threatened Species 2018: e.T22696683A132588719. <https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22696683A132588719.en>. BirdLife International. 2018. *Sula variegata*. The IUCN Red List of Threatened Species 2018: e.T22696686A132589026. <https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22696686A132589026.en>

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

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

The gear type is purse seine, the vertical distribution shown in previous IMARPE reports have defined the potential area of interaction with the water column at up to 10 m of depth. It is quite unlikely that there are any significant impacts on benthic habits resulting from the operation of purse seine fishing gear.

Technical measures are published on the PRODUCE website through Ministerial Resolutions (Resolución Ministeriales). Those measures designed to protect habitats and Vulnerable Marine Ecosystems (coral reefs, mangrove forests) include restricting industrial fishing operations to 5 nautical miles from the coast; Marine Protected Area (MPA’s) are in operation (F1.3). New entrants to the fishery are prohibited.

Therefore, potential habitat interactions are considered in the management decision-making process and the fishery **PASSES** Clause F2.1.

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

Usually, the purse seine fishery is not deemed to significantly impact the seafloor unless used in shallow waters. In Peru, industrial vessels can only operate outside the 10 nm from the coast (DS N°005-2012 (PRODUCE 2012a); the artisanal fleets can operate from the 3nm from the coast in order to protect coastal habitats and spawning and breeding zones for several species (PRODUCE 2017b).

A similar fishery (the Northern-Central industrial Peruvian anchoveta fishery, operating with purse-seines) collects information on the bathymetry of the seafloor that interacts with fishing gears. In the 2019-I season, the SALVAMARES program reported that of the 3146 monitored sets, 5.3% interacted with the seafloor. This was a reduction from the 2018-II season where 12.1% had seabed interaction (CeDePesca 2019d).

There are two marine protected areas in Peru, the “Reserva Marina de Paracas” and the “Reserva Nacional de Islas, Islotes y Sistemas de Puntas de Guano”, both aiming at protecting marine life, mainly seabirds and marine mammals. The effects of these marine reserves on the stock of anchoveta are unknown, but it is reported as beneficial for the conservation of ETP species (CeDePesca 2018).

These areas are well respected by the fishery as all anchoveta industrial fishing vessel locations are tracked via satellite (Heck 2015). Data was provided (SALVAMARES Report 2019) from observed fishing trips on the sediment type remaining on nets after hauling, resulting from incidental interaction with the seabed. Observers reported a total number of interactions with sea beds in 147 shallow water inlets (5% by number of total inlets fished). Sediments observed on the nets after fishing operations included mud, sand and rock.

Therefore, the fishery has been deemed to have low risk to habitats. However, there have been difference in the data reported by the private observer programme and the national observer programme. Interactions with seabed have been slightly presented in different ways. Quality of data collected on habitats impacts should be improved and more information about VMEs geographical distribution should be collected. However, new measures to limit fishing operations in shallow water (5nm for industrial fleet) provide support to confirm that the fishery does not damage the seafloor.

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

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

The fishery is not likely to interact with habitats in any significant manner and dedicated measures to reduce such effects are not strictly required.

From October 2018 the Government made available VMS data from the fleets to the Global Fishing Watch (GFW) application. Vessels from both industrial fleets are included. Mandatory vessel monitoring systems (VMS) are in place, as required by PRODUCE Decrees N°10/2010, N°5/2012 and N°01/2013. The electronic/radio log is required as well for the fishery (PRODUCE 2016a).

Any violation of entry into Marine Protected Areas and Vulnerable Marine Ecosystems for fishing operations are prosecuted. Results of these prosecutions are published on the PRODUCE website (R16). However, it would be useful to provide a map of VMEs along the Peruvian coast and overlay the fishery footprint to support that the fishery does not operate on any VMEs. SALVAMARES report has shown that only the 0.5% of the trawls observed presented interactions with the seafloor.

Therefore, the measures already implemented in the fishery to monitor the fishing areas are working but there is still an information gap in the definition of encountered habitats that should be improved with mapping the vulnerable areas.

Therefore, there are measures in place to minimise and mitigate negative impacts on habitats and fishery **PASSES** Clause F2.3

References	
Report No 3 (2019 12pp) PROGRAMA “SALVAMARES” Onboard observer reports: https://cedepesca.net/wp-content/uploads/2020/01/2019-10-16_Report-of-the-Private-Observer-Program-on-board.pdf	
Ficha de impacto de la pesquería de anchoveta sobre especies de by-catch y protegidas. http://cedepesca.net/wp-content/uploads/2018/04/CeDePesca_Fichas-de-impacto-de-la-pesquer%C3%ADa-de-anchoveta-2017-11-29.pdf	
BirdLife International. 2018. <i>Sula neboxii</i> . The IUCN Red List of Threatened Species 2018: e.T22696683A132588719. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22696683A132588719.en .	
BirdLife International. 2018. <i>Sula variegata</i> . The IUCN Red List of Threatened Species 2018: e.T22696686A132589026. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22696686A132589026.en	
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

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

The assessor would like to point out that as the fishery on the southern stock is relatively low in terms of total catches, the studies and management measures for this fishery are less than for the similar one in the Northern. In terms of assessing the fishery and considering that the species characteristics are similar in the area, the assessor has taken the approach and results given for the Northern-Central stock, assuming that both stocks have the same behaviour against environmental conditions. That approach has been applied in all clauses related to F3.

Anchoveta are highly dependent on environmental events; periodically, the upwelling that drives the Humboldt Current Large Marine Ecosystem’s productivity, where the fishery operates, is disrupted by El Niño-Southern Oscillation (ENSO) events.

Spatiotemporal variability affecting anchoveta at different temporal scales has been studied by several authors. During ENSO events, fish abundance and distribution are significantly affected, often leading to stock crashes and cascading social and economic impacts. These events because regime shifts where anchovetas; sardines or other LTL species alternate as the dominant species in the ecosystem. Also, in the recent published stock assessment report, managers indicated that they attempted to maintain the stock above a minimum biological reference point set up at 5 million t, which has been demonstrated throughout the time series to be a sufficient level to support the ecosystem.

Therefore, the broader ecosystem within which the fishery occurs is considered during the management decision-making process and the fishery **PASSES** Clause F3.1.

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

Prolonged warm anomalous conditions since late 2013 have led to higher diversity in the pelagic ecosystem, higher mixture of juvenile and adult organisms and in anchoveta schools diet change from euphausiids to copepods, more coastal distribution and increased consumption of anchoveta by other coastal species due greater accessibility.

IMARPE, in their various reports, highlights that difficulties to predict environmental variability are more evident in recent years, and indicates that research focus should be on preservation environmental resilience by protecting coastal areas, spawning events and anchoveta juveniles.

IMARPE stock assessment reports defined that main threat posed by this fishery consists of reduction of food availability to protected predator species (Gislason, 2003), as anchovy is a forage species. An inverse relationship was found between the anchoveta fishing mortality and populations of seabirds and pinnipeds. Also, a negative trend was observed for anchoveta landings from 1990 to 2012, what was also seen for other commercial species, which rely on anchoveta directly or indirectly through the trophic chain, underpinning the key role of anchoveta in Peruvian marine ecosystem.

Therefore, there is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem and the fishery **PASSES** Clause F3.2.

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.

In the recent published stock assessment report, managers indicated that they attempted to maintain the stock above a minimum biological reference point set up at 5 million t, which has been demonstrated throughout the time series to be a sufficient level to support the ecosystem.

IMARPE are currently attempting to quantify the actual needs of the ecosystem to add further evidence to this assumption. The information reported in the “Informe para el Proyecto de Mejoras de la Pesquería de Anchoveta CHI Stock Centro-Norte (PROME)” in order to understand the processes affecting the ecosystem impacts of fishing the low trophic level Peruvian anchovy in the Northern Humboldt Current Ecosystem, the recent ecosystem study has shown that the predators with more than 50 % of anchovy in their diets were boobies, cormorants, pelicans, bonitos, other large pelagic, sea lions, catfishes and fur seals. Predators with more than 2 t.km-2 y-1 of anchovy consumption were bonito, medium demersal, horse mackerels, other large pelagic and pacific mackerels.

The conclusions of those results were that depletion experiments varying levels of fishing mortality of adult Peruvian anchovy Northern-Central stock, using both ecosystem models (without and with environmental forcing), indicated that at the status quo fishing mortality ($F = 0.784$) and level of anchovy depletion (around 19 % B_0), does not impact the abundance levels of more than 15 % of the other species and trophic groups by more than 40%, and also does not reduce the abundance level of any other species or trophic group by more than 70 % (OFICIO N° 309-2020-IMARPE/PE).

Further, in the last stock assessment some measures and advices were provided to avoid removals when it is considered that the juvenile fraction of the stock could be affected (sizes < 12 cm) such as fishing closures, closures areas, temporary bans among others as anchovy stock is closely monitored over the year. (Different resolutions: R. M. 477-2019-PRODUCE (04/11/2019); R. M. 483-2019-PRODUCE (19/11/2019); R. M. 544-2019-PRODUCE (20/12/2019); R. M. 552-2019-PRODUCE; R. M. 544-2019-PRODUCE).

Therefore, 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 and therefore the fishery **PASSES** clause F3.3.

References

Report No 3 (2019 12pp) PROGRAMA “SALVAMARES” Onboard observer reports: https://cedepesca.net/wp-content/uploads/2020/01/2019-10-16_Report-of-the-Private-Observer-Program-on-board.pdf

Ficha de impacto de la pesquería de anchoveta sobre especies de by-catch y protegidas. http://cedepesca.net/wp-content/uploads/2018/04/CeDePesca_Fichas-de-impacto-de-la-pesquer%C3%ADa-de-anchoveta-2017-11-29.pdf

IMARPE 2020: North-central Peruvian anchovy stock (*Engraulis ringens*) situation during May 2020 and exploitation perspectives for the first 2020 fishing season.

Informe para el Proyecto de Mejoras de la Pesquería de Anchoveta CHI Stock Centro-Norte (PROME). OFICIO N° 309-2020-IMARPE/PE. Abril 2020

Links

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

SOCIAL CRITERION

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

Glossary

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

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

Appendix

Fishery Assessment Peer Review Template

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

Fishery under assessment	Anchoveta (<i>Engraulis ringens</i>) Northern Border of Peruvian EEZ To 160 South CB response: Please note that the fishery assessed in this report is the Southern Peru/ Northern Chile stock (this profile), assessed by Chile and Peru and managed unilaterally by each country. Changes in the final report have been done to amend this mistake.
Management authority (Country/State)	Ministry of Production (PRODUCE)
Main species	Anchoveta (<i>Engraulis ringens</i>)
Fishery location	Northern Border of Peruvian EEZ to 160 South CB response: Please note that the fishery assessed in this report is the Southern Peru/ Northern Chile stock (this profile), assessed by Chile and Peru and managed unilaterally by each country. Changes in the final report have been done to amend this mistake.
Gear type(s)	Purse seine (industrial fleet)

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

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 IFFO RS 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			
Category C Species	X		
Category D Species	X		
Section F – Further Impacts			X

Detailed Peer Review Justification

Peer reviewers should provide support for their answers in the boxes provided, by referring to specific scoring issues and any relevant documentation as appropriate.

Detailed justifications are only required where answers given are one of the ‘No’ options. In other (Yes) cases, either confirm ‘scoring agreed’ or identify any places where weak rationales could be strengthened (without any implications for the scores).

Boxes may be extended if more space is required.

1. Is the scoring of the fishery consistent with the IFFO RS standard, and clearly based on the evidence presented in the assessment report?

The assessment report seems to be adequate and in general, it provides the information necessary to justify the scores assigned to the different categories. This is a semi-pelagic fishery with relatively low impact on other species, habitat and (direct impact) on ecosystem.

In general, I would say that the management of the southern Peruvian anchoveta fishery seems to be less developed than in the Northern area due to its lower importance in the volume of the catches.

A clear harvest strategy for the fishery needs to be developed which take into consideration the key role of anchoveta in the Peruvian ecosystem.

CB: Agree with PR's conclusions.

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

In general, the IFFO RS standard has been adequately applied to this assessment.

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

I understand that the species categorisation should be correct as this information has been provided by the client. However, in a recent report that I used for this fishery, to characterize the bycatch species in the northern (regions XV-II) Chilean anchoveta fishery, data from the onboard observer program conducted by the IFOP for the fishing season 2019-2020 (IFOP 2020) was used. The table below shows the data used in that report, which seems to differ quite a lot from the data shown in this assessment (the "main" species are the same, but the percentages are quite different). In this case, the Chilean jack mackerel should be assessed under Category A, as it makes up more than 5% of landings. So, if possible, please double-check that the data provided is correct.

Estimated total catch (MT) by species in the north-central zone anchovy fishery (2019-2020). Data from scientific observers {IFOP 2020}.

Name	2019-2020	
	Total catch (MT)	% Catch
	Regions XV-II and III-IV	
Anchovy (<i>Engraulis ringens</i>)	40,599	65.3
Chilean Jack mackerel (<i>Trachurus murphyi</i>)	18,562	29.8
Chub mackerel (<i>Scomber japonicus</i>)	3,005	4.8
Mote sculpin (<i>Normanichthys crockeri</i>)	19	0.03
South American pilchard (<i>Sardinops sagax</i>)	13	0.02
Corvina drum (<i>Cilus gilberti</i>)	4	0.01
TOTAL	62,198	100

CB Response: The information reported above is from the observer program carried out by IFOP as mentioned by the PR. The information used to evaluate the fishery is provided by the client. The landings reported in 2021 and 2019 is less than 1%. Therefore, following the catch composition provided by the client Chilean jack Mackerel is categorised as C. The assessor will request further information to the client through MarinTrust responsible to verify the classification of Chilean Jack mackerel. No further amendments have been done in the report at this stage.

Carrot squid lobster is assessed under category D, please correct it in the table.
 CB response: Noted.

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

A management organization (PRODUCE) manages the fishery and fishery data is collected by the IMARPE. However, I would highlight that some of the information included here seems to be more related to the management of the northern Peruvian stock than to the management of the southern stock. In my opinion, the management and collection of data from this particular fishery is poorer due to the relatively lower importance of the anchoveta catches in the south of Peru. Some other comments:

CB response: The assessor agrees with the PR, the management of the southern stock is less than for the other stock. The clauses have been reviewed and amended when needed.

M1.6 I would say that since IMARPE changed the website is more difficult to find the information related to the assessment of the fishery. If I am not wrong, the information provided in this section "A target spawning biomass value between the 3 - 6 million tons associated with a risk less than 50% is selected" and "An exploitation rate that should be less than 0.35% is applied when TAC is defined" refers to the Northern stock.

CB response: Noted and corrected following the reference: IMARPE. 2021. Situación de la anchoveta disponible en la región sur del mar peruano y perspectivas de explotación para la primera temporada de pesca de 2021. 14 pp.

M2.3 This FIP in progress is for the southern stock?

CB response: As far as I know there is no FIP for this stock.

3A. Are the "Category A Species" scores clearly justified?

The stock is regularly assessed by the IMARPE using fisheries and scientific data. The last assessment report/s (both from Peru and Chile) indicate that the stock is over the MSY.

No further comments necessary.

CB response: Noted

3B. Are the "Category B Species" scores clearly justified?

No Category B species identified

3C. Are the "Category C Species" scores clearly justified?

Two species have been assessed under this category: Chilean jack mackerel and Pacific chub mackerel. In the first case, the species is assessed by the SPRFMO and the most recent stock assessment indicated that the species was over BMSY. In the case of the Pacific chub mackerel, I am not sure that the information presented in the rationale is enough to prove that the species is over the limit reference point. However, the catch of chub mackerel by this particular fishery can be considered relatively low. So, I understand that both species pass the correspondent clauses.

CB response: More information has been included in the rationale to show that the stock is above limits. In IMARPE 2019 report the total biomass was 20% higher than the estimated biomass for previous years. SSB was estimated at 10 % and fishing mortality showed a slightly decreasing. Further, IFOP has estimated that $B/BMSY = 1.81$ in 2020 for this stock in Chile EEZ. Assuming that catches are low, with all in mind, the assessor considers that there are evidences to demonstrate that the stock meets the criteria for Category C.

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

Only one species squid lobster is assessed in this section. I understand that the data used is based on the most recent biological information for the species and the conclusion (the species pass this clause) is correct.

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

In Chile, the GLFA requires that a resolution listing the bycatch species for each of the fisheries subjected to a discard management plan is annually published by the SUBPESCA. In the most recent resolutions, a number of species are listed as potential bycatch of the anchovy fishery in Regions XIV-II (Res. Ex. N° 718-2021), which is the closest to the area covered by this assessment (as indicated in the report, the anchoveta stock is shared by both countries). The species included are: marine mammals such as common dolphins, bottlenose dolphins and dusky dolphins and the South American sea lion; seabirds such as the sooty shearwater, Franklin's Gull and the grey gull (*Leucophaeus modestus*), the Inca tern (*Larosterna inca*) (NT), the Humboldt penguin (*Spheniscus humboldti*) (VU), the Peruvian pelican, the Peruvian booby and cormorants (*Phalacrocorax gaimardi*, *Phalacrocorax bouganvillii*); sea turtles, including green turtle, leatherback turtle and the loggerhead turtle; skates and rays such as eagle rays (*Myliovatis peruvianus*) and *Raja* sp.; and sharks such as: thresher sharks, blueshark (*Prionace glauca*), hammerhead sharks and speckled smoothhound. It would be interesting to double-check that the ETP catch data from the SALVAMARES program, which is collected in the North of Peru, is also valid for the southern stock and it covers the previous range of species. But I agree that no current ETP data seems to be available (or it is very difficult to find) for the assessed stock and the data from the Northern stock can be used as a “proxy”.

F3. I would like to highlight that the management of the anchoveta stock/s in Peru does not take into consideration the importance of the species as key species in the ecosystem.

CB response: Some information has been included to provide more evidence in the clauses related to ETPs and ecosystem impacts.

Optional: General comments on the Peer Review Draft Report

In the assessment summary section, I have some doubts about the following statement: “Catches of other small pelagic fishes such as the Carrot squat lobster (*Pleuroncodes monodon*), Jack Mackerel (*Trachurus murphyi*); Chub mackerel (*Scomber japonicus*) **have begun to contribute** to less than 6 % of the total catches”. What does it mean? The catches of these species have increased or decreased in recent years?

“Carrot” squat lobster is the official common name for *Pleuroncodes monodon*?

CB response: Yes carrot lobster is the common name included in Worms.

Regarding the catches what the assessor wanted to express that the species have shown more percentages of catches however these percentages are still low if compared with the total landings or total catch composition.

I would include a sentence in the assessment determination indicating that the catch of anchoveta in the southern region of Peru, covered by this assessment report, represents a relatively small fraction of the total catch in the country. Due to this circumstance, it seems that the management of this stock/fishery is somehow less strong than in the northern area.

CB response: noted