MarinTrust Standard V2

Whole fish Fishery Assessment Report Template
Anchoveta (Engraulis ringens)
(Southern Peru stock)

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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:			
Assessor Name	**CB Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/ Re-approval**
Jose Peiro Crespo	Léa Lebechnech	4	Surveillance 1
Assessment Period		To August 2022	
Scope Details			
Management Authority (Country/State)		Peru Ministry of Production (PRODUCE)	
Main Species		Anchoveta (*Engraulis ringens*)	
Fishery Location		From 16° South to southern border Central-Southern Peru stock FAO 87 (Southeastern Pacific Ocean)	
Gear Type(s)		Purse seine (industrial fleet)	
Outcome of Assessment			
Overall Outcome		**Pass**	
Clauses Failed		**None**	
CB Peer Review Evaluation		**Agree with outcome**	
Fishery Assessment Peer Review Group Evaluation		**Approve see report One and Two in appendix**	
Recommendation		**Pass**	

Table 2. Assessment Determination

Assessment Determination

Anchoveta (*Engraulis ringens*) is found throughout the South-eastern Pacific Ocean, ranging from Zorritos (4°30' S) in Northern Peru to Chiloé (42°30' S) in Southern Chile (Serra et al. 1979; FishSource 2021).

Two stocks have been identified in Peruvian water:

1. the Northern-Central Peruvian stock, assessed and managed by Peru;
2. the Southern Peru/Northern Chile stock (this report), assessed and managed unilaterally by each country. In Chile, it corresponds to the regions of Arica and Parinacota, Tarapacá and Antofagasta (XV-II).

This report assesses the purse seine fishery of the Anchoveta fishery from 16° South to southern border of Peru (Central-Southern Peru stock). That stock is targeted by steel and wood industrial vessel. Peruvian law allows up to 5% of non-target species bycatch in weight in this fishery. Anchoveta represents between 95 and 98% of the catch, other bycatch species include Munida/Squat lobster (*Pleuroncodes monodon*), Chilean jack mackerel (*Trachurus murphyi*) and other minor species (Chub mackerel (*Scomber japonicus*), Humboldt squid (*Dosidicus gigas*), etc.

All Peruvian fisheries are supervised by the Ministry of Production (PRODUCE), in co-operation with the Peruvian Marine Research Institute *(Instituto del Mar del Perú* - IMARPE), which assess the stocks and provides scientific advice to PRODUCE. Each year, fishing is divided into two seasons. Hydro-acoustic surveys are conducted and environmental and biological data collected by the IMARPE before each fishing season. The stock is assessed based on that data and a total authorised catch (TAC or *Limite Máximo Total de Captura Permisible - LMTCP*) is recommended. Since 2009, an individual transferable catch share system is also in place in the fishery. Individual transferable quotas (ITQs) can only be transferred to another vessel already in possession of an ITQ (so-called 'semi-transferable' quotas), and new vessels are prohibited from entering the fishery (Yonashiro and Balbin, 2016).

The management framework and the surveillance, control and enforcement system meet minimum requirements set by the MARINTRUST Standard, **sub-clauses M1.1-M1.6 are met**.

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* N° 009-2017 PRODUCE). Fisheries' activities and landings are controlled under a specific program approved by Ministerial Resolution N° 027-2003-PRODUCE. Third-party operators (SGS) conduct landing operations verification at 134 designated landing sites. A satellite tracking system and On-Board Inspectors Program is implemented, as well as a logbook program (*Programa de Bitácoras de Pesca*) which can be used to monitor compliance in the fishery, **sub-clauses M2.1-M2.4 are met**.

Total fishing mortality of the southern Anchoveta stock is regulated through a system of TACs. The species is caught by steel and wood industrial vessels. The TAC set by the authorities has not been surpassed since 2002. Landing data is monitored by independent third-party operators (SGS) at a total of 134 designated landing sites. IMARPE also collects other data which is used to assess the stock. Therefore, **sub-clauses A1.1. and A.1.2 are met.**

The Marine Research Institute of Peru – IMARPE, is the scientific institute in charge in carrying out most of the research used by the PRODUCE. Data collected through twice-yearly hydro-acoustical surveys and by onboard observers is used to assess the status of the stock, using a stochastic surplus production model which estimates reference points (MSY). In 2021, a SSB_{MSY} = 939,000 tonnes was estimated. A decision table is built then by the IMARPE, which include the risk of the biomass falling below the MSY level, and a TAC is recommended. A *Limite Máximo Total de Captura Permisible* (LMTCP) of 486,500 tonnes was recommended for the first fishing season of 2022. These stock assessments are reviewed and published on the gov.pe website. **Sub-clauses A2.1, A2.2, A2.3, A2.4 and A2.5 are met.**

As indicated above, the catch of Anchoveta in the area is regulated through an annual TAC (also called LMTCP) recommended by the IMARPE and set by PRODUCE. Temporal bans are also set when the number of juveniles in the catch surpasses a 10% limit to protect the stock. Anchoveta catches are closely monitored by the authorities. Historical catches indicate that the catches for the southern Anchoveta stock have not surpassed

the TAC since 2002. During the first 2022 fishing season, 40,6% of the TAC was taken. In 2022, the stock was considered to be above the biomass reference point (B_{MSY}). **Sub-clause A3.1-A3.3 are met.**

Total biomass of the stock has been variable over the years but has generally been above one million tonnes in recent years. In 2020 it oscillated between 940,000 tonnes and 1,090,000 tonnes. The available biomass has been above B_{MSY} and F below F_{MSY} since 2008 (IMARPE 2021). Therefore, **sub-clause A4.1 is met.**

Chilean jack mackerel has been identified as **category C species**. Since 2013, a joint jack mackerel assessment is conducted by the South Pacific Regional Fisheries Management Organization (SPRFMO) for the species, and catch limits are agreed for the assessment unit area and for the Convention area, in accordance with scientific recommendations. The most recent stock assessment conducted for the species indicated that biomass of the stock was over the B_{MSY} (5,500,000 tonnes) and F was below F_{MSY}, (0.12). Therefore, **sub-clauses C1.1 and C1.2 are met.**

One **category D species** (non-managed species representing <5% of the catch) has been identified in the fishery: Munida/Squat lobster. A PSA has been conducted and the species passed it. Therefore, **clauses D are met.**

None of the species assessed in this report are categorised as Endangered or Critically Endangered on the IUCN Red list nor is listed in Appendix 1 of CITES.

In Peru, the IMARPE's national observer program (*Bitacoras de pesca*) collects data on incidental catches in the pelagic fisheries. Data on ETP bycatch is also collected by the industry (TASA) during the anchoveta fishing operations in the southern zone of Peru. Therefore, **sub-clause F1.1 is met.** Based on that information, interaction of the fishery with ETP species (marine mammals, seabirds) seem to be high but the impact (dead individuals) low, as these species are liberated before hauling the net aboard. **Sub-clause F1.2 and F1.3 are met.**

The gear used in the fishery is purse seine. Purse seine gear is not designed for interaction with the seabed. Gear loss is also thought to be very rare in the fishery. Therefore, **sub-clauses F2.1, 2.2 and 2.3 are met**.

During the first draft of this fishery assessment, it was considered that sub-clause "F1.1. Interactions with ETP species are recorded" failed because no information was available about the impact of the anchoveta fishery in the southern zone of Peru on ETP species. However, IMARPE was contacted, and the SNP met by the assessor and new information provided on that issue. Data on bycatch seems to be collected both by the IMARPE and the industry TASA and sub-clause F1.1. is now considered to be met. Initially, the assessor didn't find any information either about internal and external reviews for the southern Anchoveta stock assessment, and he considered that A2.4 also failed. However, it is understood that the assessments are reviewed before setting the TACs for the stock. Moreover, both Peru and Chile are carrying out the project "Catalysing Implementation of a Strategic Action Programme for the Sustainable Management of Shared Living Marine Resources in the Humboldt Current System (HCS)" which includes among its objectives to establish mechanisms for data-sharing and collaborative stock assessment (between IMARPE and IFOP) of the shared anchovy stock. Therefore, it is considered that sub-clause A2.4 is also met. Therefore, the assessor determined that Anchoveta PASS for the production of fishmeal and fish oil under the MarinTrust v 2.0 by-products standard for whole fish.

Fishery Assessment Peer Review Comments

Notes for On-site Auditor

Table 3 General Results

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

Table 4 Species- Specific Results

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

Category	Species	% landings	Outcome (Pass/Fail)	
Category A	Anchovy (*Engraulis ringens*)	98%	A1	Pass
			A2	Pass
			A3	Pass
			A4	Pass
Category B	NA	-	NA	
Category C	Chilean jack mackerel (*Trachurus murphyi*)	<5%	Pass	
Category D	Munida/squat lobster (*Pleuroncodes monodon*)	<5%	Pass	

Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category[1]	% of landings	Management	Category
(Peruvian) Anchoveta	*Engraulis ringens*	Central-Southern Peruvian stock	Least concern	98%	PRODUCE	A
Chilean jack mackerel	*Trachurus murphyi*	Pacific stock	Data deficient	<5%	PRODUCE	C
Munida/squat lobster	*Pleuroncodes monodon*	Southeastern Pacific stock	Not assessed	<5%	PRODUCE	D

Species categorisation rationale

Specific information about bycatch in the Southern Peruvian Anchoveta fishery collected by the Peruvian authorities (IMARPE, PRODUCE) is scarce. A number of sources have been then used to build the table above.

The SALVAMARES programme conducted under the Fisheries Improvement Project (FIP) currently in place for the Northern Peruvian anchovy fishery, collects data on bycatch for that fishery. During the first fishing season of 2020, the only species which represented more than 0.1% of the catch for that fishery was the crustacean Munida (*Pleuroncodes monodon*). No fish species surpassed that reference level. However, Longnose anchoveta (*Anchoa nasus*) has been described as inseparable or practicably inseparable (IPI) species for the anchovy fishery in the area and it is considered that it is not separated by the observers (SALVAMARES 2019).

The Southern Peruvian Anchoveta stock is shared stock between Peru and Chile. The Chilean authorities (IFOP, SUBPESCA) collected bycatch data for that fishery Chile between 2017 and 2018 in order to prepare the "Discard and bycatch reduction plan" for the Chilean fishery (Regions XIV-II). The data collected show only two species surpassing the 0.1% threshold in 2018, Jack mackerel (0.8%) and munida (0.3%). The third bycatch species in volume is chub mackerel, which in 2017 represented 0.08% of the catch. Therefore, it has not been selected (SUBPESCA 2019).

Finally, in April 2022, a EUREKA LXXII operation was conducted by the IMARPE in collaboration with the industry in the southern area of Peru to evaluate the status of the stock (presence of juveniles, etc). The species caught included Anchoveta (90%), Munida (9%) and other species (1%), such as Chub mackerel, Skipjack, Jack mackerel, etc. The exact percentage of these last species is not specified in the report.
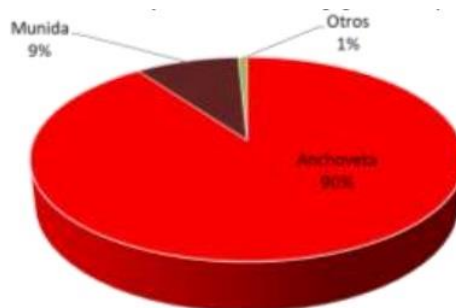

Figure 1 Catch composition during the EUREKA LXXII operation (Source: IMARPE 2022)

Based on the above references, three species have been selected here as a bycatch in the anchovy fishery: Longnose anchovy, Munida and Jack mackerel.

References

IMARPE 2022. *Informe preliminar de la operación EUREKA LXXII del 25 – 27 de abril 2022. RESOLUCIÓN MINISTERIAL* N° 157-2022-PRODUCE. 10 pp. Available at: https://www.gob.pe/institucion/imarpe/informes-publicaciones/2943854-informe-preliminar-de-la-operacion-eureka-lxxii-del-25-27-de-abril-2022

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[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.

This report assesses the purse seine fishery of the Anchoveta (*Engraulis ringens*) fishery from 16° South to southern border (Central-Southern Peru stock). Anchoveta (*Engraulis ringens*) is found throughout the Southeastern Pacific Ocean, ranging from Zorritos (4°30' S) in Northern Peru to Chiloé (42°30' S) in Southern Chile (Serra et al. 1979; FishSource 2021). According to the results of electrophoretic studies, there are two different Anchoveta stocks along its distribution range (Cahuin et al. 2015; Mendo 2018):

      1. the Northern-Central Peruvian stock, evaluated and managed by Peru;

      2. the Southern Peru/Northern Chile stock (this profile), evaluated and managed unilaterally by Chile and Peru.
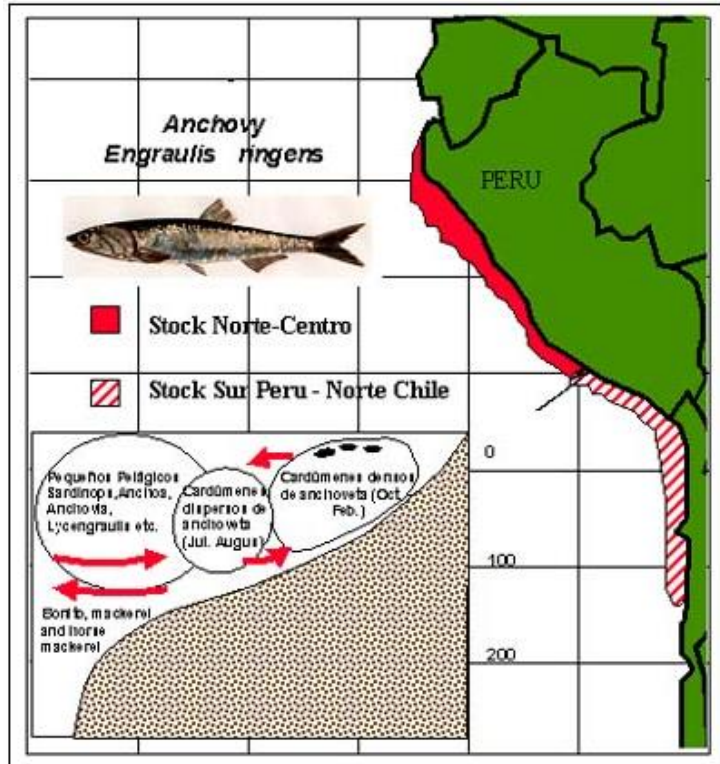
The Vice-Ministry of Fisheries and Aquaculture, within the Ministry of Production (PRODUCE), has competence over fisheries management in Peruvian waters. The PRODUCE entity was established in 2002 by Peruvian Law 27779. Vice-Ministry responsibilities include the creation and implementation of management plans, the conduct of fisheries research, the establishment of the regulatory framework for fisheries management, and the issuance and administration of regulations. Through Ministerial Resolutions (Resolucines Ministeriales - RS) and Supreme Decrees (Decretos Supremos - DS), annual catch limits and technical measures governing the fishery are published on the PRODUCE website.

Two fleets harvest the Anchoveta: one that lands anchovies for processing, known as the Indirect Human Consumption (IHC) fleet, and one that can only land anchovies for human consumption, known as the Direct Human Consumption (DHC) fleet (Avadi et al. 2014).
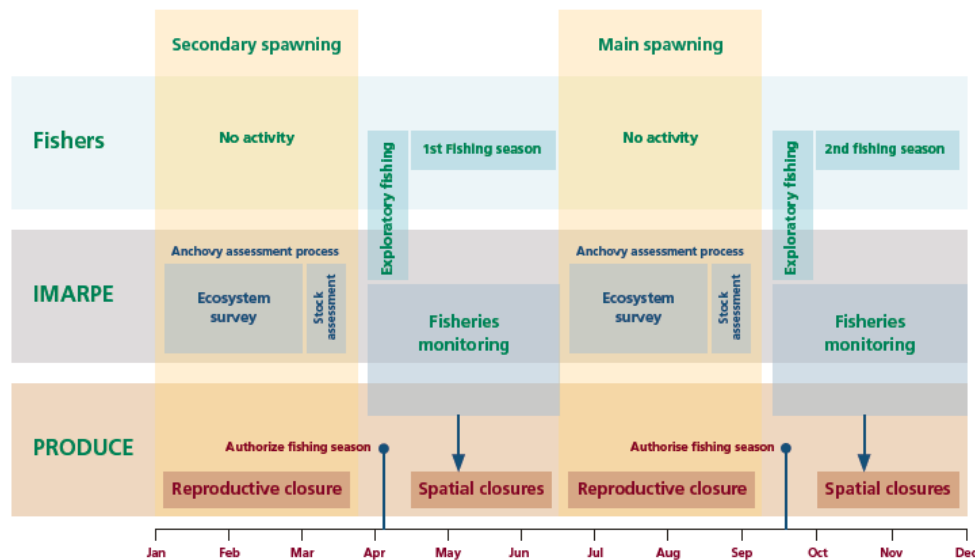

Figure 3: Peruvian anchovy fisheries management (Source: Oliveros-Ramos et al., 2021)

As indicated, all Peruvian fisheries are supervised by PRODUCE, in co-operation with the Peruvian Marine Research Institute providing scientific advice (IMARPE). Each year, fishing is divided into two seasons and is governed by a total authorised catch (TAC, or *Limite Máximo Total de Captura Permisible - LMTCP*) and, since 2009, an individual transferable catch share system. Individual transferable quotas (ITQs) can only be transferred to another vessel already in possession of an ITQ (so-called 'semi-transferable' quotas), and new vessels are prohibited from entering the fishery (Yonashiro and Balbin, 2016). During the two most important spawning periods, fishing is prohibited entirely (Seasonal closures). As an extra measure of protection for the stock, temporary closures (for a minimum of three days) in certain fishing zones are introduced during each fishing season in areas with juvenile catches above 10 percent (PRODUCE, 2016).

Consequently, there is an organisation tasked with administering the fishery. Therefore, **it passes sub-clause M1.1.**

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

The *Instituto del Mar del Perú* – IMARPE, is the main technical organisation of the Peruvian government entrusted with conducting the necessary research to ensure that ministerial fisheries management decisions are based on solid evidence. IMARPE conducts stock assessments and makes annual catch limit recommendations. IMARPE also issues periodic reports on fishery activity that include, among other things, the following: *Informe Técnicos*: findings of acoustic surveys; *Prospección biológico-pesquera*: stock assessments and guidance on TACs; and *Reporte del Programa Bitacora de Pesca*: observer reports and log sheet data.

Two to four scientific surveys encompassing the entire Peruvian coastline are conducted annually by the IMARPE. Surveys capture oceanographic and environmental data, and are used to estimate total biomass, egg and larvae production, Anchoveta population size structure, and reproductive status of the Anchoveta stocks. To address environmental variability, which is particularly influential in the Peruvian Upwelling System, IMARPE employs remote sensing and in situ observations at sea and on land to conduct extensive and ongoing monitoring of the ecosystem. In addition, during atypical environmental conditions, a 'Eureka' operation conducts hydroacoustic evaluation surveys with data acquired simultaneously by multiple industrial fishing vessels under the direction of IMARPE (Oliveros-Ramos et al., 2021).

Based on a predefined protocol, the IMARPE assess the stock and issues catch guidelines (IMARPE, 2015):

1. First, the stock size, structure, and biomass is estimated from the hydro-acoustic surveys;
2. Size structure are projected under diverse circumstances (exploitation, growth, and mortality, which will vary according on anticipated environmental conditions during the projection period);
3. A decision table is built to recommend a TAC, according to different scenarios

When population numbers are low, and the environment is unstable, further surveys are conducted. Although discards are not officially documented, they are indirectly factored into stock estimates via acoustic surveys and population length frequency statistics.

Oliveros-Ramos et al. (2021); Scott (2020) state that fisheries management for the reduction fishery has significantly improved, and seasonal fishing closures are resulting in increased stock size and health of anchovy stocks.

Also, on September 9, 2020, PRODUCE's General Directorate for Monitoring, Surveillance, and Control issued Directive N° 061-2020-PRODUCE/DGSFS-PA, which set the rules for how PRODUCE will continue to share IMARPE information about illegal and unreported catches in the anchovy fishery. This information is used to come up with TAC recommendations for IMARPE.

There is an organisation responsible for collecting data and assessing the fishery. Therefore, **it passes sub-clause M1.2.**

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

The General Fisheries Law N°. 25977 (*Ley General de Pesca*) consists of 12 Titles and 90 Articles.

The aims of management include ensuring the long-term viability of fisheries and aquatic resources. The management of fisheries is based on the best available scientific knowledge and includes consideration of the economic and social elements of fishing activities. In 2016, following the government's formal ratification of the Paris Agreement, a National Environmental Policy for ecosystem conservation was ratified.

Moreover, each year IMARPE presents the "*Plan Operativo Institucional*" in which the principal results of commercial stocks are presented (i.e., survey results, landings, and management modifications). As a result, fishery management organisations are publicly committed to sustainability, and the stock complex is managed accordingly.

Fishery management organisations are publicly committed to sustainability. **It passes sub-clause M1.3.**

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

Article 3 of *Decreto Supremo* N° 021-2008 grants Officials the legal right to define the length of fishing seasons and LMTCPs in accordance with IMARPE's recommendations.

As mandated by the Regulations of the Organization and Functions of the Ministry of Production, PRODUCE publishes lists of sanctions imposed and applicable laws, fines, and fishing suspensions on the ministerial website.

Important fishery regulations are:
- Title XI Articles 76 through 83: *Ley* 25977 *Ley General de Pesca* (1998), which lists prohibitions, violations, and sanctions applied to Peruvian fisheries. PRODUCE uses *Resoluciones Directorales* (Directorial Resolutions) to issue all sanctions.
- Chapter II Articles 103-107: Fisheries Inspectors: Captains' responsibilities and responsibilities.

Article 9 of the Law also grants PRODUCE the authority 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 released Protocol N° 054-2019-MP-FN, which intends to create procedures for executing interdiction operations against accused unlawful fishing.

Therefore, fishery management organisations are legally empowered to take management actions. **It passes sub-clause M1.4.**

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

The *Sociedad Nacional de Pesquera* (SNP) is a non-profit organization created by the fishing industry, which main aim is to lead the growth of fishing and aquaculture industries in Peru by combating illegal activities and supporting the protection of the environment through sustainable fishing, sound science, and creative techniques. SNP's goals include representing the industry

in government forums and meetings and facilitating cooperation with government and regional departments that promote and grow Peru's fishing and aquaculture industries. Article 7 of the SNP's Ethical Code is devoted to complaints about the decision-making process.

The government and SNP have made agreements to comply with transparent decision-making processes and deliver speedy resolutions to fisheries issues. Consequently, 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 organisations interested in the development of standards and policies pertaining to fisheries management.

Since 2015, both IMARPE and PRODUCE have been gradually enhancing the transparency of this fishery's management. IMARPE publishes daily landing data from industrial aircraft (IMARPE 2017). There are numerous committees to represent various fisheries interests.

The decision-making process is made public and there is a consultation mechanism through which fisheries stakeholders participate in decision-making. Therefore, **it passes sub-clause M1.5.**

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

On the PRODUCE website, annual catch limits and technical measures that regulate the fisheries are provided.

IMARPE provides periodical updates on the status of the fishery, including the following:
1. *Informe Técnicos*: results of acoustic surveys; *Prospección biológico-pesquera*: stock assessments and guidance on TAC's; *Reporte del Progamas Bitacora de Pesca*: observer reports and logsheet data.
2. Local and international press feedback on the work of IMARPE and PRODUCE, as well as the status reports of Peru's fisheries and aquaculture operations.
3. The many SNP committees participate in meetings to agree upon management measures that are then published as ministerial rules.

The "*Dirección General de Políticas y Desarrollo pesquero*" establishes the TACs for each fishing season using different management rules. When addressing the management strategy, a precautionary approach based on the best available knowledge is adopted, and IMARPE's recommendations are considered.

Legislation has been enacted in a timely manner to respond to general decisions, such as when a facility must be closed due to the presence of juveniles. The implementation of N° 024-2016-PRODUCE permits the identification of fishing zones with a high frequency of juveniles. Depending on the proportion of juveniles, the area may be closed for up to five days.

Conflicts within the fishery are addressed by decision-making procedures.

Therefore, there is a consultation process through which fishing stakeholders are involved in decision-making, and the process is open and transparent, with processes and outcomes readily available to the public. Consequently, the decision-making process is transparent, with methods and results available to the public. Therefore, **it passes sub-clause M1.6.**

References

Direct links have been included in the text (*references in Spanish*).

Avadi, A., I. Vazquez-Rowe and P. Freon. 2014. Eco-efficiency assessment of the Peruvian Anchoveta steel and wooden fleets using the LCA+DEA framework. Journal of Cleaner Production, http://dx.doi.org/10.1016/j.jclepro.2014.01.047

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FishSource, 2021. FishSource - Anchoveta - Southern Peru/Northern Chile, 21 June 2021. Accessed on 28 July 2022. https://www.fishsource.org/fishery_page/6869

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

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

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

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

Mendo, J. 2018. Electrophoretic studies of Peruvian Anchoveta *Engraulis ringens* confirm the existence of distinct North/Central and Southern stocks. Marine and Freshwater Miscellanea. Fisheries Centre Research Report 26(2):16-26.

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

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

PRODUCE. 2016. *Decreto Supremo que establece medidas para fortalecer el control y vigilancia de la actividad extractiva para la conservación y aprovechamiento sostenible del recurso Anchoveta*. *Decreto Supremo* N° 024-2016-PRODUCE.

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

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Yonashiro, C.A. & Balbín, N.A. 2016. *Las cuotas individuales transferibles en la pesquería Stock Norte – Centro de Anchoveta peruana (Engraulis ringens). DOCUMENTO DE TRABAJO* N° 001-2016-DECHI, PRODUCE.

Zuzunaga, J. (2003) Some Shared Fish Stocks of South Eastern Pacific, In: Papers Presented at the Norway-FAO Expert Consultation on the Management of Shared Fish Stocks - Bergen, Norway, 7-10 October 2002, FAO Fisheries Report No. 695, FAO 2003. https://www.fao.org/3/Y4652e/y4652e0h.htm

Links	
MARINTRUST Standard clause	
FAO CCRF	
GSSI	

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

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

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* N° 009-2017 PRODUCE). Fisheries' activities and landings are controlled under a specific program approved by Ministerial Resolution N° 027-2003-PRODUCE. Third-party operators (SGS) conduct landing operations verification at 134 designated landing sites.

The DGSF publishes and updates a list of vessels that are not permitted to operate in the fishery, as well as a significant number of 'featured inspections' and prosecutions on its website. During periods of high fishing activity, up to 650 inspectors are on the ground in Peru conducting daily control operations.

The Fishing and Landings Surveillance Program (PVCPDAM), Vessel Departure Control checks and the Satellite Surveillance System of fishing vessels (SISESAT) are used to monitor industrial fishing operations (Arias Schreiber 2012). IHC ships are prohibited from fishing within the first ten nautical miles (nm) from the coast, which are protected for small-scale and artisanal fleets (Supreme Decree 005-2012-PRODUCE). New fishing vessels cannot enter the fishery unless they have the same storage capacity as their predecessors. In addition, there are seasonal reproductive closures and a 10 percent limit on the proportion of juveniles in total landings. The VMP's DIGSECOVI agency supervises the imposition of sanctions for violations of the GFL or the Regulations for Fishing and Aquaculture Inspections and Sanctions (RISPAC), which, depending on the severity of the infraction, can include monetary penalties or the loss of fishing rights (Aranda 2009).

With the electronic log system and mandatory positioning system now on board for all fleets, tracking and compliance concerning discards and zonal incursions (industrial vessels operating within 5nm of the coastline) are expected to increase. Most infractions involve an excessive number of juveniles onboard or fishing without prior notification.

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

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

As mandated by the Regulations of the Organization and Functions of the Ministry of Production, PRODUCE publishes on its website a list of penalties used and applicable legislation, fines, and fishing bans.

Other regulations pertinent to the application of sanctions in the fishing industry include:
- *Ley* 25977 *Ley General de Pesca* (Articles 76 to 83).
- *Decreto Supremo* N° 012-2001-PE *Reglamento de la Ley General de Pesca* (Articles 126 to 150).
- *Decreto Supremo* N° 016-2007-PRODUCE: *Reglamento de Inspecciones y Sanciones Pesqueras Acuicolas*: Inspectors' inspection powers, including the ability to issue fines for noncompliance.
- *Decreto Supremo* N° 024-2016-PRODUCE: Control and inspection measures (fines, licence revocations).

Therefore, there is a framework of punishments that are implemented when it is determined that laws and regulations have been violated, in order to protect the fishery.

There is a framework of sanctions which are applied when laws and regulations are broken. **Sub-clause M2.2 is met.**

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

One of the objectives of the current management efforts is to organise data gathered by industrial fishing vessels and stimulate additional technology innovation and development to enable more effective ecosystem evaluation and monitoring.

The government made VMS data from fleets available to the Global Fishing Watch (GFW) application beginning in October 2018. At the time, Peru was the first country in Latin America to give these data to the GFW platform, which aims to increase openness in fishing operations and eliminate IUU fishing globally. Included are vessels from industrial fleets.

The fishery is closed to new vessels, and all 134 designated landing points are monitored around-the-clock to ensure that only vessels with permits are permitted to land catch. There is substantial evidence that these mechanisms have been effective in limiting fishing effort, the most important of which is that seasonal landings have not exceeded quotas. PRODUCE implemented a fishing closure to prevent unlawful activity and to limit the annual catch (Senate Bill N° 544-2019- PRODUCE).

The Protocol (N° 54-2019-MP-FN) published by PRODUCE intends to establish a mechanism that must be adopted to undertake surveillance operations against illegal fishing of marine fish species. Document N° 0005-2016-PCC / TC – Case of Judicial Resolutions in Fisheries was issued by the Constitutional Court (*Tribunal Constitucional*). With this judgement, the Constitutional Court concluded the request for conflict-of-jurisdiction fishery licences provided by judicial decisions.

PRODUCE has published *Resolución Ministerial* N° 306-2020, in which it specifies the criteria for determining the total allowable catch (TAC) for the Direct Human Consumption (DHC) sub-fishery. After a new Executive Table was convened in

October 2021, the DS N° 024-2021-PRODUCE was authorised, implementing fisheries traceability system for the fishing industry, and with plans to gradually make it binding for the small-scale sector. Resolution stipulates that the combined TAC for the DHC and IHC sub-fisheries should not exceed the IMARPE-recommended catch rate for the anchovy stock. The General Directorate for Monitoring, Surveillance, and Control of PRODUCE has issued Directive N°061-2020-PRODUCE/DGSFS-PA, which establishes the rules by which PRODUCE will continue to supply IMARPE with information regarding unlawful and undeclared fishing in the Peruvian anchovy fishery. This information is also utilised to determine IMARPE's TAC recommendations.

Off the coast of Peru, under-reporting of landed catches and discards of juvenile anchovies have been reported. In contrast to the North-central anchovy stock, however, there are paucity of data on the severity of this issue for southern stocks. Some stocks of Peruvian anchovy have reported discards in industrial fisheries recent years due to the presence of excessive numbers of juveniles (Grillo et al., 2019; Diaz 2017; Wosnitza-Mendo et al., 2010). However, in the absence of exact statistics on extent of discards and extent of fisheries MCS efforts for the southern anchovy stock, concrete conclusions cannot be derived based on publicly available information alone (Estrada 2020; Grillo et al., 2019; Aguilar-Ramírez et al., 2018).

Since 2016, fishing vessels have been required to disclose their fishing locations and the percentage of juveniles in their catches. IMARPE evaluates such data to identify critical fishing zones with a high frequency of juvenile catches, in order to recommend temporary closures of these zones to PRODUCE. This form of protection for the juvenile population is especially critical during warming events, when the increasing overlap in the spatial distribution of adults and juveniles makes the latter more susceptible to capture. In addition, an electronic landing monitoring programme has been implemented, and a self-sampling procedure for fishing vessels has been promoted, both for fishing effort monitoring and biological, population, and ecological monitoring (e.g., size structure of Anchoveta, bycatch) – including the monitoring of Anchoveta size structure and bycatch (PRODUCE 2016; Oliveros-Ramos et al., 2021).

Therefore, there is no considerable evidence of widespread noncompliance and no substantial evidence of illegal, unreported, and unregulated fishing, **so it passes sub-clause M2.3.** *However, the fishery does not have a regular monitoring programme that releases data on fisheries violations of the industrial fleet. MCS reporting seems to be exclusively concentrated on the Northern-Central Anchoveta fishery.*

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.

Current fisheries regulation mandate that industrial vessels operate a Satellite Tracking System (SISESAT) designed to keep them at least 5 nautical miles distance from the coast. In 2016, DGSFS built a mobile application and integrated it with the SISESAT system. According to PRODUCE, the software enables qualified inspectors to examine the location, speed, heading, and distance of fishing vessels to the coast with greater precision than traditional satellite systems. As per PRODUCE Supreme Decrees N° 10-2010, N° 5-2012, and N° 01-2013, mandatory vessel monitoring systems (VMS) are in force. In addition, the electronic/radio log is necessary for the fisheries (PRODUCE 2016a). All 134 designated landing spots are monitored around-the-clock to ensure that only vessels with permits are permitted to land catch.

Landings and size composition of the industrial fleet are monitored continuously (24/7) at every landing site. Currently, IMARPE and PRODUCE onboard observers collect information from up to 80 percent of fishing trips, with vessel monitoring systems (VMS) mandatory for the industrial fleet. Stock assessment is carried out by IMARPE, estimating the population structure from the results of the hydroacoustic surveys and projected under several harvest scenarios. Harvest scenarios are projected up to the next reproductive peak, and use different population parameters (e.g., growth, mortality) according to the environmental conditions (favourable or unfavourable) predicted during the period. The results are presented in the form of a decision table (IMARPE, 2016; IMARPE, 2019) used by PRODUCE to set the TAC for the current fishing season (Oliveros-Ramos et al., 2021).

The fishing season starts 15 days after authorization by PRODUCE. Between the authorization date and the beginning of the fishing season, an exploratory fishing trip is supervised by IMARPE. The objective is to update knowledge on the spatial distribution of the resource and particularly to identify areas with a high proportion of juveniles, in order to set temporal closures. The catch during the exploratory fishing is taken into account for the final setting of the TAC (Oliveros-Ramos et al., 2021).

During the Anchoveta assessment procedure, the estimated quantity and weight of juvenile animals landed during a fishing season (as a fraction of the TAC) are computed and reported to PRODUCE. This figure, referred to as the "juvenile TAC," provides an additional management criterion that strengthens the protection of juvenile individuals: it permits PRODUCE to

close the fishery once landings reach the juvenile TAC, even if the full TAC has not been reached, thereby protecting the more diverse population during warming events (Oliveros-Ramos et al., 2021).

Consequently, compliance with rules and regulations is actively monitored, using a regime that may include at-sea and portside inspections, observer programmes, and VMS, so that the fishery may continue to function. **It passes sub-clause M2.4.**

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Links	
MARINTRUST Standard clause	
FAO CCRF	
GSSI	

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 (*Engraulis ringens*)	
A1	**Data Collection - Minimum Requirements**	
	A1.1 Landing 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 Landing data are collected such that the fishery-wide removals of this species are known.

In Peru, landing data is monitored by independent third-party operators (SGS) at a total of 134 designated landing sites. IMARPE collects that data and uses it to assess the stock. According to IMARPE 2022, during the first fishing season in 2022 between January 6 and June 26, 2022, 197 mil tonnes of the southern anchoveta stock were landed. Landings in Ilo (to the south of the area of distribution of the stock) represented a 55% of the total catch in the area.

fecha	Juveniles (t)	Adultos (t)	Total (t)	fecha	Juveniles (t)	Adultos (t)	Total (t)	fecha	Juveniles (t)	Adultos (t)	Total (t)
7/01/2022	795	2 494	3 289	1/03/2022	355	1 694	2 049	1/05/2022	395	903	1 298
8/01/2022	392	553	946	2/03/2022	294	529	823	2/05/2022	89	198	287
9/01/2022	192	1 481	1 674	3/03/2022	158	857	1 014	4/05/2022	165	544	709
10/01/2022	333	1 475	1 808	4/03/2022	1 808	4 471	6 279	5/05/2022	60	618	678
12/01/2022	555	942	1 497	5/03/2022	1 076	2 843	3 919	6/05/2022	447	2 084	2 531
13/01/2022	1 312	2 111	3 423	20/03/2022	139	751	890	7/05/2022	563	1 642	2 205
14/01/2022	952	3 042	3 994	21/03/2022	975	3 210	4 186	8/05/2022	230	784	1 014
15/01/2022	175	725	899	22/03/2022	319	2 628	2 947	10/05/2022	97	1 332	1 429
18/01/2022	206	637	843	23/03/2022	279	938	1 217	11/05/2022	110	992	1 102
19/01/2022	444	831	1 275	24/03/2022	723	828	1 551	12/05/2022	196	1 462	1 658
23/01/2022	256	1 032	1 287	25/03/2022	333	1 048	1 381	13/05/2022	114	737	851
24/01/2022	626	3 356	3 982	28/03/2022	253	708	961	14/05/2022	82	847	929
25/01/2022	1 339	2 758	4 097	29/03/2022	1 094	2 980	4 074	16/05/2022	37	448	485
26/01/2022	573	2 539	3 111	30/03/2022	158	1 938	2 096	17/05/2022	379	2 542	2 921
27/01/2022	79	808	887	31/03/2022	144	2 154	2 298	18/05/2022	66	794	861
28/01/2022	681	2 954	3 635	1/04/2022	58	379	437	19/05/2022	207	2 123	2 330
30/01/2022	387	925	1 312	2/04/2022	57	757	815	21/05/2022	434	1 993	2 427
31/01/2022	499	1 181	1 680	3/04/2022	389	2 346	2 735	22/05/2022	37	279	316
1/02/2022	626	1 364	1 990	4/04/2022	64	44	108	26/05/2022	8	184	192
2/02/2022	267	1 774	2 041	5/04/2022	159	350	509	27/05/2022	165	1 564	1 729
5/02/2022	878	4 534	5 412	8/04/2022	319	1 475	1 794	28/05/2022	98	1 184	1 282
21/02/2022	395	2 952	3 348	9/04/2022	39	146	185	29/05/2022	17	477	494
22/02/2022	1 337	3 765	5 102	10/04/2022	93	256	349	30/05/2022	67	1 463	1 530
23/02/2022	849	2 797	3 646	11/04/2022	128	386	513	31/05/2022	232	1 180	1 412
24/02/2022	417	3 729	4 145	12/04/2022	291	1 214	1 505	1/06/2022	95	783	878
25/02/2022	499	3 304	3 803	13/04/2022	103	170	273	2/06/2022	216	417	633
26/02/2022	1 036	3 951	4 987	14/04/2022	194	1 430	1 624	3/06/2022	44	582	626
27/02/2022	472	2 922	3 394	15/04/2022	1 522	1 467	2 989	4/06/2022	72	570	642
28/02/2022	782	3 010	3 792	16/04/2022	460	1 477	1 938	5/06/2022	227	1 099	1 326
				17/04/2022	433	1 115	1 549	6/06/2022	97	928	1 025
				18/04/2022	557	1 372	1 929	7/06/2022	565	930	1 495
				19/04/2022	369	1 176	1 545	8/06/2022	193	1 288	1 482
				20/04/2022	s/m	s/m	164	9/06/2022	272	1 215	1 487
				24/04/2022	49	382	431	10/06/2022	115	1 019	1 135
				25/04/2022	500	1 687	2 187	11/06/2022	53	750	804
				26/04/2022	291	684	975	12/06/2022	100	884	984
				27/04/2022	40	249	288	13/06/2022	19	298	317
				28/04/2022	45	158	202	14/06/2022	27	482	509
				30/04/2022	201	906	1 107	16/06/2022	23	763	787
								17/06/2022	177	806	983
								18/06/2022	198	505	704
								19/06/2022	28	456	484
								20/06/2022	91	955	1 046
								22/06/2022	150	796	947
								23/06/2022	989	1 293	2 282
								24/06/2022	168	1 223	1 390
								25/06/2022	68	1 129	1 197
								26/06/2022	10	417	427
								Total	40 119	157 110	197 393

Figure 4: Daily catches of southern Anchoveta during the first 2022 fishing season (Source: IMARPE 2022).

Landings data are collected such that the fishery-wide removals of this species are known, **sub-clause A1.1 is met**.

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

IMARPE is the scientific institute in charge in carrying out most of the research used by the Peruvian Ministry of Production (PRODUCE) to develop fishery management policies in Peru. Since 1982, the IMARPE has monitored anchovy populations using acoustic techniques through twice-yearly hydro-acoustical cruises along the geographical range of the anchovy population. In these surveys, performed before each fishing season, IMARPE monitors oceanographic conditions and carries out direct biomass estimates and onboard sampling to estimate size structure and reproductive parameters (IMARPE 2020). The IMARPE's Bitacora program deploys observer aboard fishing vessels in order to collect biological samples while a private company collects them at ports. All data are analyzed and used to calculate the catch quotas for the two anchovy fishing seasons per year for both the northern-central and southern stock (Arias Scheiber & Halliday 2013; Arias Schreiber 2013). When conditions are anomalous, real-time monitoring is intensified. Four surveys were conducted over 2019 and 2020 to determine the status of the southern Peruvian stock.

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

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

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

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

As indicated previously, IMARPE is the scientific institute in charge in carrying out most of the research used by the Peruvian Ministry of Production (PRODUCE) to develop fishery management policies in Peru. Data collected through twice-yearly hydro-acoustical surveys and by onboard observers is used to assess the status of the southern Anchoveta stock. The stock assessment

conducted by IMARPE covers the Peruvian part of the stock (which is shared with Chile) and considers the whole fishing year (IMARPE 2021). A mid-year evaluation is performed to evaluate the status of the stock before the second fishing season.

The species is assessed regularly, and the assessment considers all fishery removals and biological characteristics of the species. **Sub-clause A2.1 is met.**

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

A stochastic surplus production model using the platform SPICT (stochastic surplus production model in continuous time) was used to evaluate the status of the southern Anchoveta stock by IMARPE in 2021. Input data included an acoustic biomass time series between 1985 and 2020 and catches between 1959 and 2020. Different parameters are estimated, including reference points and an MSY catch level that is used to base the advice for the fishing year (IMARPE 2021). In 2021, the surplus production model estimated the MSY for the southern stock at SSB_{MSY} = 939,000 MT {IMARPE 2020c}.

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

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

Based on the results of the stock assessment model indicated above, a decision table is built by the IMARPE, which include the risk of the biomass falling below the MSY level, and TAC is recommended for the whole year.

Escenario F_{2020} (F_{2019} x)	F_{2020}	Captura 2020 (millones t)	Biomasa remanente 01/01/21 (millones t)	Riesgo (B_{2021} < B_{2020}) (%)	Riesgo (B_{2021} < B_{MRS}) (%)
1.0	0.119	0.165	1.382	51	28
1.5	0.178	0.243	1.354	53	30
2.0	0.238	0.317	1.289	55	33
2.5	0.297	0.389	1.244	58	35
3.0	0.357	0.458	1.202	60	37
3.5	0.416	0.523	1.160	62	39
4.0	0.476	0.587	1.120	63	41
4.5	0.535	0.648	1.082	65	43
5.0	0.595	0.706	1.045	66	45
5.5	0.654	0.762	1.009	67	47
6.0	0.714	0.816	0.975	69	48
6.5(*)	0.773	0.867(*)	0.941	70	50
7.0	0.833	0.916	0.909	71	51
7.5	0.892	0.964	0.878	71	53
8.0	0.952	1.009	0.848	72	54
8.5	1.011	1.053	0.819	73	55
9.0	1.071	1.095	0.791	73	56
9.5	1.130	1.135	0.764	74	57
9.8(**)	1.172	1.162(**)	0.745	74	58

(*) Nivel de F y cuota de captura que permitiría, según el modelo, dejar al 01 de enero de 2021 una biomasa equivalente a la necesaria para el MRS (B_{MRS} = 939 mil toneladas).
(**) Nivel de F y cuota de captura equivalente al MRS.

Figure 5: Decision table build by the IMARPE to recommend a TAC for the second 2020 fishing season (IMARPE 2021).

A LMTCP of 486,500 tonnes was recommended for the first fishing season of 2022. Resolution N° 463-2021-PRODUCE (December 30 2021) authorized the starting of the fishing season. Catches are monitored on a daily basis and the fishery is conducted until the TAC is completed (or the TAC is not reached a date limit is established, in this case June 30 2022). For the second fishing season of 2022 a LMTCP of 978,000 tonnes was also established (IMARPE 2022).

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

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

In Peru, stock assessments are conducted by the IMARPE. According to the most recent assessment report, a number of subjects from the General Directorate of research in Pelagic Resources (DGRIP) and the Functional Area (subdepartment) of Neritic-Pelagic Resources (AFIRPN) (both departments/subdepartments inside the IMARPE) collaborated in the preparation of the report. The methodology for the evaluation of the status of the southern stock was also reviewed in 2015 by the IMARPE. Therefore, several departments seem to collaborate in the preparation of those reports. It is understood that those assessments are also reviewed by the PRODUCE before setting the TACs for the stock. .

IMARPE methods to assess the anchoveta stock were also peer reviewed by an international panel of experts in 2009 (IMARPE, 2010b) and again by FAO experts in 2014. These experts provided a series of recommendations to IMARPE such as using integrative, indirect methods for stock assessment, long-term projections, harvest control rules for different environmental conditions, and including catches and biomass of all fleet estimates (FAO 2014). It was concluded that there is a high standard scientific support towards the management of fisheries in Peru (FAO 2014).

Peru and Chile are also carrying out the project "Catalysing Implementation of a Strategic Action Programme for the Sustainable Management of Shared Living Marine Resources in the Humboldt Current System (HCS)" which includes among its objectives to establish mechanisms for data-sharing and collaborative stock assessment of the shared anchovy stock (between IMARPE and IFOP), which could be considered an external review of the assessment process specifically for the southern Peruvian stock.

The assessment is subject to internal or external peer review. **Sub-clause A2.4 is met.**

A2.5 The assessment is made publicly available.

Reports of stock assessments and advice on TACs for the Anchoveta stocks can be found on go.pe website under the PRODUCE-IMARPE option (https://www.gob.pe/institucion/imarpe/informes-publicaciones?sheet=40). Ministerial resolutions about the fishing season are also easily found online (https://busquedas.elperuano.pe/normaslegales/autorizan-el-inicio-de-la-primera-temporada-de-pesca-del-rec-resolucion-ministerial-no-249-2020-produce-1873746-1/).

The assessment is made publicly available. **Sub-clause A2.5 is met.**

References

Aranis, A., A. Gómez, K. Walker, M. Ramírez, S. Mora, L. Caballero, G. Eisele, F. Cerna, C. Valero, A. López, C. Machuca, L. Muñoz, M. Troncoso, M. Albornoz, J. Bonicelli, and U. Cifuentes. 2019b. *Programa de Seguimiento de las Principales Pesquerías Pelágicas de la Zona Centro-Sur de Chile, V-XI Regiones, año 2018. Informe Final. Convenio de Desempeño*, 2018. 1117 pp. IFOP. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2020/P-581146.pdf

CMSA. 2018. Acta 6/2018 *Comité de Manejo de Sardina Austral X Región*. Available at: https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html

Links

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

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

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

As indicated above, the catch of Anchoveta in the area is regulated through an annual LMTCP set by PRODUCE based on the recommendations given by PRODUCE. Catches are monitored on a daily basis during the fishing season and it is closed when the TAC is reached (if it is not, a date limit is previously set). The fishery is performed by steel and wood industrial vessels. During the first season of 2022, around 100 vessels participated in the fishery and no more new fishing licenses are allowed.

Temporal bans are also set to protect the stock when the number of juveniles in the catch surpasses a 10% limit. During the first season of 2022, 61 areas were closed to protect juveniles.

Fecha	Resoluciones Directorales y Comunicados emitidos	N° Comunicados emitidos	N° Áreas cerradas	Áreas acumuladas (Km²)
01-28 Feb	COM 31 al 40	10	12	24 818
01 - 31 Marz	COM 41 - 53	13	16	37 937
01 - 30 Abr	RD040 y 045 / COM 54 al 67	14	17	46 293
01 - 31 May	RD048 / COM 68 al 73 y 96	8	8	11 212
01 - 27 Jun	COM 100-106-119 y 125	8	8	6 853
total		53	61	127 113

Figure 6. Closed areas during the first 2022 fishing season (IMARPE 2022).

Therefore, it is understood that a management mechanism is in place to restrict fishing mortality. **Sub-clause A3.1 is met.**

A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.

Anchoveta catches are closely monitored by the authorities. During the first 2022 fishing season, 40,6% of the TAC was taken (see figure below). The steel fleet caught 82% of the total catch. The TAC has not been surpassed in recent years.

Figure 7: Cumulative catches – Southern Anchoveta stock (IMARPE 2022).

Historical catches shown in the figure below indicate that the catches for the southern Anchoveta stock have not surpassed the TAC since 2002.
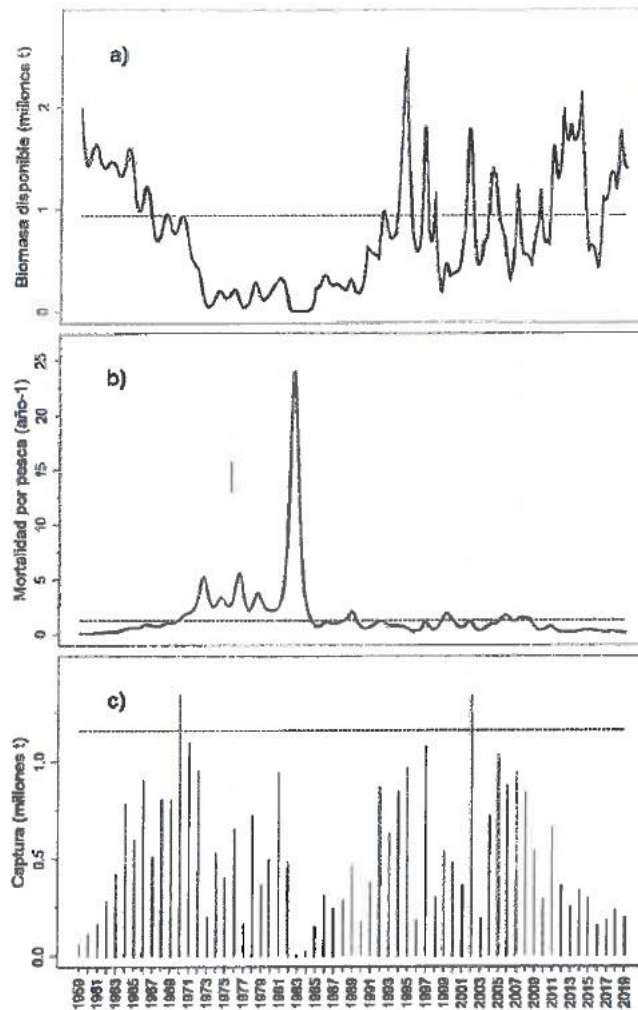
Figure 8: Biomass, fishing mortality and catch for the southern Anchoveta stock (IMARPE 2021).

Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. **Sub-clause A3.2 is met.**

A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).

A harvest control rule that anticipates reducing the fishing effort when biomass is low is not in place for the fishery. However, the fishing season is not started by the PRODUCE when the stock is below the limit biomass. The stock is currently considered to be above the biomass reference point (B_{MSY}).

When below the limit reference point, a recovery plan must be implemented. Therefore**, it is considered that sub-clause A3.3 is met.**

References

Aranis, A., A. Gómez, K. Walker, M. Ramírez, S. Mora, L. Caballero, G. Eisele, F. Cerna, C. Valero, A. López, C. Machuca, L. Muñoz, M. Troncoso, M. Albornoz, J. Bonicelli, and U. Cifuentes. 2019. *Programa de Seguimiento de las Principales Pesquerías Pelágicas de la Zona Centro-Sur de Chile, V-XI Regiones, año 2018*. *Informe Final. Convenio de Desempeño*, 2018. 1117 pp. IFOP. https://www.ifop.cl/wp-content/contenidos/uploads/RepositorioIfop/InformeFinal/2020/P-581146.pdf

Leal Faúndez, E., M. Zúñiga Basualto, D. Bucarey Sepúlveda, and F. Espíndola Rebolledo. 2018. *Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales, 2018. Sardina austral X Región.*

Convenio de Desempeño 2017. Informe 2 Estatus. 141 pp. IFOP. Available at: https://www.subpesca.cl/portal/616/w3-propertyvalue-56295.html

SUBPESCA 2022. *Estado de situación de las principales pesquerías chilenas al año 2021*. 108 pp. Available at: https://www.subpesca.cl/portal/618/w3-article-114817.html

Standard clause 1.3.2.1.3

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

A4	**Stock Status - Minimum Requirements**	
	A4.1 The stock is at or above the target reference point, OR IF NOT: The stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure OR IF NOT: The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.	Yes
	Clause outcome:	**Pass**

A4.1 The stock is at or above the target reference point, OR IF NOT:

The stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure OR IF NOT:

The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.

Total biomass of the stock has been variable over the years but has generally been above one million tonnes in recent years. In 2020 it oscillated between 940,000 tonnes (March) and 1,090,000 tonnes (November). The available biomass has been above B_{MSY} and F below F_{MSY} since 2008 (IMARPE 2021).

In February/March 2020, the IMARPE conducted an hydroacoustic survey to assess the status of the anchovy, horse mackerel, mackerel and others pelagic species in the southern region of Peru (Cr. 2020-0203) {IMARPE 2020c}. The acoustic biomass of the anchovy was estimated 939 thousand tonnes. 88% of the biomass observed in this region was located within the first 10 nautical miles and the sizes of the anchovy in this region fluctuated between 2.0 and 16.0 cm in total length (TL), with several modes of 7.0, 8.5 and 11.5 cm. Using a stochastic surplus production model, the MSY for the southern stock was calculated at SSB_{MSY} = 939 thousand tonnes, a decision table was built by the IMARPE to recommend the catch for the second fishing season of that year {IMARPE 2020c}.

According to the IFOP (which assessed the whole stock covering both Peru and Chile), total and spawning biomass in the second semester of 2020 would be 1,700,000 tonnes and 1,100,000 tonnes respectively, well (75%) above SSB_{MSY} (SUBPESCA 2022).

Biomass estimates between 1985 and 2020 for the southern Anchoveta stock are shown in the figure below.
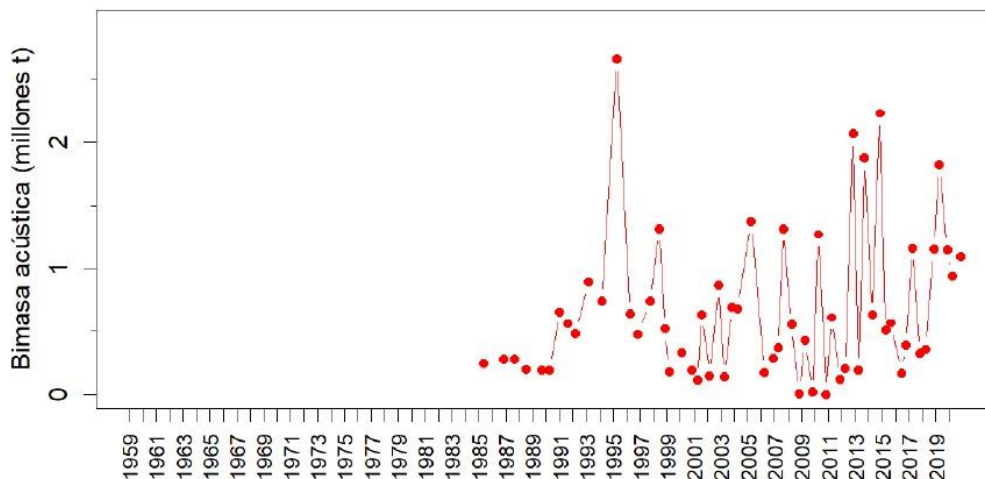
Figure 9: Biomass estimates for the southern Anchoveta stock between 1985 and 2020 (IMARPE 2021).

The stock is above the limit reference point. **Sub-clause A4.1 is met.**

References

IMARPE 2021. *Informe sobre la "Situación de la Anchoveta disponible en la región sur del mar Peruano y perspectivas de explotación para la primera temporada de pesca de 2021"*. OFICIO N° 009 -2021-IMARPE/DEC. 14 pp. Available at: https://www.gob.pe/institucion/imarpe/informes-publicaciones/1924961-informe-correspondiente-al-oficio-n-009-2021-imarpe-dec

SUBPESCA 2022. *Estado de situación de las principales pesquerías chilenas al año 2021*. 108 pp. Available at: https://www.subpesca.cl/portal/618/w3-article-114817.html

Links

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

CATEGORY B SPECIES

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

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

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

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

Table B(a) - F, B and reference points are available

Biomass is above MSY/target reference point	Pass	Pass	Pass	Fail	Fail
Biomass is below MSY/target reference point, but above limit reference point	Pass, but re-assess when fishery removals resume	Pass	Fail	Fail	Fail
Biomass is below limit reference point (stock is overfished)	Pass, but re-assess when fishery removals resume	Fail	Fail	Fail	Fail
Biomass is significantly below limit reference point (Recruitment impaired)	Fail	Fail	Fail	Fail	Fail
	Fishery removals are prohibited	**Fishing mortality is below MSY or target reference point**	**Fishing mortality is around MSY or target reference point, or below the long-term average**	**Fishing mortality is above the MSY or target reference point, or around the long-term average**	**Fishing mortality is above the limit reference point or above the long-term average (Stock is subject to overfishing)**

If the biomass / fishing pressure risk assessment is not possible

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

Table B(b) - No reference points available. B = current biomass; Bav = long-term average biomass; F = current fishing mortality; Fav = long-term average fishing mortality.

B > Bav and F < Fav	Pass	Pass	Pass	Fail
B > Bav and F or Fav unknown	Pass	Pass	Fail	Fail
B = Bav and F < Fav	Pass	Pass	Fail	Fail
B = Bav and F or Fav unknown	Pass	Fail	Fail	Fail
B > Bav and F > Fav	Pass	Fail	Fail	Fail
B < Bav	Fail	Fail	Fail	Fail
B unknown	Fail	Fail	Fail	Fail
Resilience	**High**	**Medium**	**Low**	**Very Low**

Assessment Results

Species Name		
B1	Species Name	
	Table used (Ba, Bb)	
	Outcome	
Evidence		
References		
Standard clauses 1.3.2.1		

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. In a by-product assessment, Category C species are those which are subject to a species-specific management regime and are usually targeted species in fisheries for human consumption.

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. A Category C species does not meet the minimum requirements of clause C1 should be re-assessed as a Category D species.

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

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

Fisheries removals for jack mackerel are collected by the South Pacific Regional Fisheries Management Organization (SPRFMO). A joint jack mackerel assessment is conducted 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 from four "fleets" (representing the main fishing gears/areas) are integrated into the assessment process. The catches from each of these fleets are presented in figure 10 below.
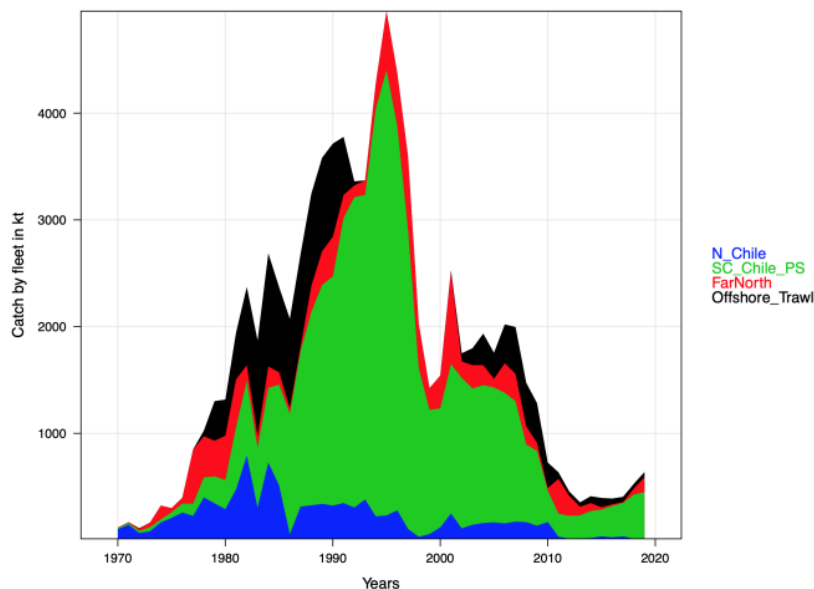

Figure 10: Catches of Jack mackerel by fleet. Green is the SC Chilean fleet, black is the offshore trawl fleet, red is the far north fleet, and blue in the northern Chilean fleet (Source: SPRFMO-SC7).

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, **so the fishery passes Sub-clause C1.1**.

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).
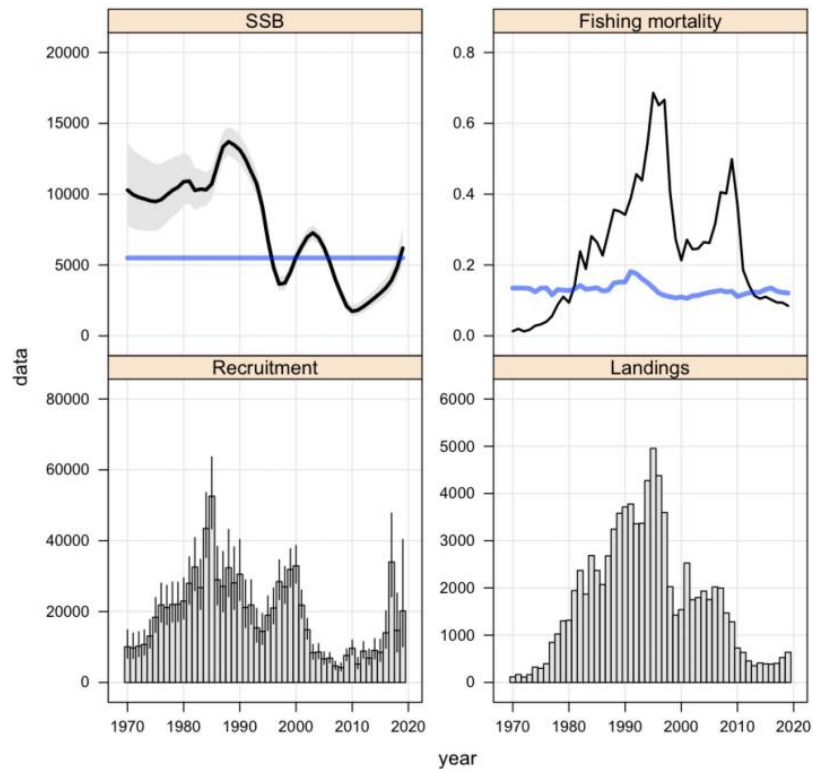

Figure 11. Model 1.00—single-stock hypothesis—summary estimates over time showing spawning biomass (kt; top left), recruitment at age 1 (millions; lower left) total fishing mortality (top right) and total catch (kt; bottom right). Blue lines represent the provisional B_{MSY} (upper left) and dynamic estimates of FMSY (upper right). Source: SPRFMO-SC7

Therefore, the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy). **Sub-clause C1.2 is met.**

References

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

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

SPRFMO. 2019d. 7th Scientific Committee Report - Annex 8. Jack Mackerel Technical Annex Rev1/1.

SPRFMO. 7-12 October 2019 Havana, Cuba. 51 pp. SPRFMO. https://www.sprfmo.int/assets/2019-SC7/Reports/SC7-Report-Annex-8-JM-Tech-Annex-Rev1.pdf

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

CATEGORY D SPECIES

In a whole fish assessment, 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. In a by-product assessment, Category D species are those which are not subject to a species-specific management regime. In both cases, 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.

The process for assessing Category D species involves the use of a Productivity-Susceptibility Analysis (PSA) to further subdivide the species into 'Critical Risk', 'Major Risk' and 'Minor Risk' groups. If there are no Category D species in the fishery under assessment, this section can be deleted.

Productivity and susceptibility ratings are calculated using a process derived from the APFIC document "Regional Guidelines for the Management of Tropical Trawl Fisheries, which in turn was derived from papers by Patrick *et al* (2009) and Hobday *et al* (2007). Table D1 should be completed for each Category D species as follows:
- Firstly, the best available information should be used to fill in values for each productivity and susceptibility attribute.
- Table D2 should be used to convert each attribute value into a score between 1 and 3.
- The average score for productivity attributes and the average for susceptibility attributes should be calculated.
- Table D3 should be used to determine whether the species is required to meet the requirements of Table D4. A species which does not need to meet the requirements of D4 is automatically awarded a pass.
- Table D4 should be used to assess those species indicated by Table D3 to determine a pass/fail rating.
- Any Category D species which has been categorised by the IUCN Red List as Endangered or Critically Endangered, or which appears in the CITES appendices, automatically results in a fail.

D1	Species Name:	Munida/Red squat lobster (*Pleuroncodes monodon*)	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	6-7 year classes (2/3 age classes)	2
	Average maximum age (years)	17 year classes (6 age classes)	1
	Fecundity (eggs/spawning)	5,000 to 20,000	2
	Average maximum size (cm)	5 cm	1[2]
	Average size at maturity (cm)	2.7	1
	Reproductive strategy	Demersal spawner ("Berried")	2
	Mean trophic level	Squat lobsters consume many different food resources, as deposit feeders, predators, scavengers, carnivorous, algal grazers, suspension feeders or even cannibals	1
	Average Productivity Score		**1.6**
	Susceptibility Attribute	**Value**	**Score**
	Overlap of adult species range with fishery	<25% of the stock	1
	Distribution	-	-
	Habitat	Bento-pelagic species	1
	Depth range	70 to 350 metres	1
	Selectivity	Species 1 to 2 times mesh size	2
	Post-capture mortality	Released alive	2
	Average Susceptibility Score		**1.5**
	PSA Risk Rating (From Table D3)		**PASS**

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[2] No guidance about how to use the productivity attributes for invertebrate species seems to be available. But according to the SFW guidance, which uses a similar approach, average maximum size (cm) and average size at maturity (cm) should not be used for invertebrates.

		Compliance rating	PASS

Susceptibility attributes: distribution: The species is distributed from Chile (~41º S) to southern Mexico (~15º N), habitat: the species is bento-pelagic (the fishery occurs in superficial waters up to 50 m on average), selectivity: species 1 to 2 times mesh size, post-capture mortality: alive after net hauled.

References

Flores et al., (2021). Reproductive strategy of yellow squat lobster (*Cervimunida johni* Porter, 1903): re-evaluating the maturity criteria. Marine Biology Research. Volume 17, 2021 - Issue 9-10.

Lovrich, G.A. & Martin, T. 2011. Ecology, physiology, feeding and trophic role of squat lobsters. In book: The biology of squat lobsters (pp.183-222) Chapter 6. CSIRO.

Palma, S. 1994. Distribution and abundance of red shrimp larvae (*Pleuroncodes monodon*) off the Concepcion coast, Chile. Invest. Mar., Valparaíso, 22: 13-29, 1994.

Roa, R. 1993. Annual growth and maturity function of the squat lobster (*Pleuroncodes monodon*) in central Chile. Mar. Ecol. Prog. Ser. Vol. 97: 157-166. 1993.

Standard clauses 1.3.2.2

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	Low productivity/ High risk — Score 3	Medium productivity/ Medium risk — Score 2	High productivity/ Low risk — 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 — Score 3	Medium susceptibility/ Medium risk — Score 2	Low susceptibility/ Low risk — 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		
		1.00 – 1.75	1.76 – 2.24	2.25 – 3.00
	1.00 – 1.75	PASS	PASS	PASS

Average Productivity Score	1.76 – 2.24	PASS	PASS	TABLE D4
	2.25 – 3.00	PASS	TABLE D4	TABLE D4

D4	**Species Name**		NA
	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			
References			
Standard clause 1.3.2.2			

FURTHER IMPACTS

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

F1	**Impacts on ETP Species - Minimum Requirements**		
	F1.1	Interactions with ETP species are recorded.	Yes

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

F1.1 Interactions with ETP species are recorded.

In Peru, the IMARPE's national observer program (*Bitacoras de pesca*) reports incidental catches in the pelagic fisheries. Data on ETP bycatch for the southern anchovy fishery is scarcer than for the northern-central stock but during the review of the assessment, IMARPE and the SNP were contacted, and new information was provided on this issue. It seems that the IMARPE collects information on the bycatch of some ETP species and the industry TASA also collects that information during its operations in the area. Data on bycatch for the years 2020 and 2021 was provided to the assessor.

Data on bycatch of ETP species is collected by the IMARPE and TASA, **sub-clause F1.1 is met.**

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

Specific information on ETP species caught in the Peruvian Anchoveta Northern-Central fishery is available. The IMARPE's "*Bitacoras de pesca*" programme operates in that fishery. Moreover, as part of the commitments to a FIP project currently in place for the northern fishery, a private observer programme (SALVAMARES) has been developed by the industry. In general terms, these programmes report a large number of interactions with ETP species but low mortality rates among ETP species.

ETP catch (including sea birds, marine mammals and reptiles) from a total of 48 observed trips, or 3,146 sets (9.8% of total trips undertaken from 28 April – 01 August 2019) is summarised in the last SALVAMARES report.

Regarding interactions with marine mammals, mortality rate was very low. During that period, 12 common dolphins (*Delphinus capensis*) were caught with one death, 7 released alive and the rest which escape themselves. A total of 7,612 Southern fur seals (*Arctocephalus australis*) and 125,306 South American sea lions (*O. flavescens*) were also observed in that period but only 2 seals and 53 sea lions died during the fishing operations.

Regarding seabirds, the species more commonly interacted were the Peruvian booby (*Sula variegata*) (398 died), the blue-footed booby (*Sula nebouxii*), the Peruvian pelican (*Pelecanus thagus*) (100 caught but release alive) and the guanay cormorant (*Phalocrocorax bougainvilii*) (809 died).

The population size of these species is large (2 million individuals for blue footed booby population and 3.7 million individuals for guanay cormorant) and the mortality rates are low, representing between 0.02% and 0.3% and of total individuals observed.

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.

As indicated above, information about the bycatch of the anchoveta fishery in the Southern area was provided to the assessor by the industry TASA (through the SNP) during the assessment process. It includes information on interactions with ETP species for the years 2020 and 2021. The quality of this data is not so good such as in the SALVAMARES program. In this case, interactions are only recorded at the species group (dolphins, seabirds, etc.) and no information is given on (released) alive/dead animals. The information about the relatively low impact of the anchoveta fishery is confirmed by the bycatch numbers reported by the SALVAMARES program for the northern-central anchoveta stock, but also by the observer program conducted by the IFOP for the Chilean share of the southern Peruvian anchoveta stock (IFOP 2021). Again, that data indicates that although interactions are substantial, mortality of bycatch species is low (For the Chilean industrial fleet operating in the area, 5,833 animals were reported as interacted with the fishery operations, corresponding to 21 identified species. In that case, marine mammals represented 79% of the catch. The sea lions were the most common species caught (4,468 individuals, 9 dead) whereas other marine mammal species

included common dolphin (71 individuals, 23 dead), dusky dolphin (56 caught, 38 dead) and bottlenose dolphin (4 caught, 4 dead) (IFOP 2021).

There is no substantial evidence that the fishery has a significant negative effect on ETP species. **Sub-clause F1.2 is met.**

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

Many of the ETP species caught in the fishery 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 (DS N° 026-2001-PE), and seabirds (DS N° 034-2004-AG). Therefore, if caught, they need to be released alive. are measures in place to minimise the impacts on ETPs species even more since there is a FIP project in place.

Three major Marine Protected Areas (MPAs), the National Reserve System of Guano Islands, Isles and Capes; the Paracas National Reserve; and the San Fernando National Reserve, covering a total area of 6,305km2, have been also established in the country to protect coastal habitats and breeding zones for several species of seabirds and marine mammals. A permanent spatial closure of 3 nm along the Peruvian coastline for all fleet was established has been also established and temporal restrictions are in place for the fishery to protect juveniles and breeding seasons for seabirds.

During the assessment process, the assessor was also indicated that when ETP species (marine mammals) are encircled during the fishing operations, they are liberated before hauling the net aboard.

Therefore, there are measures are in place to minimise mortality, **so sub-clause F1.3 is met.**

References

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Standard clause 1.3.3.1

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

Evidence

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

Anchoveta is a pelagic fish that occurs mainly within 80 km of the coast that forms huge schools, chiefly in surface waters. The species is caught in Peruvian and Chilean waters by both industrial and artisanal fishing vessels working with purse seines (Avadi et al., 2014).

Purse seine fishing involves enclosing a school of fish, in this case Anchoveta, with a curtain of netting. The top of the net is mounted on a float line and the bottom on a lead line that usually consists of a steel chain with steel rings, known as "purse rings". The purse line, which runs through the purse rings, is made of steel and allows for the pursing of the net. Once the fish are encircled by the net, the bottom of the net is closed underneath, which stops the fish from escaping. The net is then partially hauled, concentrating the fish near the boat and allowing them to be brought on board (Morison & Mc Loughlin 2015).

Although specifications can vary, nets for Anchoveta are typically made of nylon mesh around 1,500 meters long and 44 meters in depth (artisanal fishing). Mesh size is 13 mm in the center, and 200 mm in the wings. The net lengths are divided into separate panels, which can be replaced when the nets are damaged.

In Peru, Supreme Decree N° 005-2012-PRODUCE established fishing zones for the fishery, reserving the first ten nautical miles (nm) for the artisanal and small-scale fleet (DHC). The IHC fleets are prohibited from fishing within the first ten nautical miles (nm) from the coast. Between 0 and 5 nm, fishing is reserved exclusively for the artisanal activity. The small-scale fleet operates only between 5 and 10 nm and the industrial fleet from 10 nm in the Northern area and from 5nm in the Southern area.

According to Salazar et al. (2014), the nets used for direct human consumption, which can reach up to approximately 44 m depth, has no impact on the habitat within the range of 0-10 nautical miles. However, there is uncertainty about the impact of the nets used by the industrial fleet on the seabed, as they are larger and can be operated within the 5 to 10 miles range. But it seems that the impact of the gear on the habitat is limited.

The gear used in the fishery is purse seine. This is pelagic fishery which have a limited interaction with the habitat. There is unlikely impact on benthic habits with purse seine fishing gear.

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

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

Purse seine gear is not designed for interaction with the seabed, and gear loss is also thought to be very rare in the fishery. Data provided by the SALVAMARES for the northern fishery reported a total number of 147 interactions with the seabed in shallow water inlets (5% by number of total inlets fished). Sediments observed on the nets after fishing operations included mud, sand and rock (SALVAMARES 2019).

There is no substantial evidence that the fishery has a significant negative impact on physical habitats. **Sub-clause F.2.2 is met.**

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

As mentioned above, the information regarding interaction with benthic habitats is limited as the purse seine fishery is typically an epipelagic fishery occurring in the water column, so there is no evidence of negative impact with physical habitats.

Peruvian legislation regulates fishing intensity through fishing licenses, bycatch limits, fishing area restrictions, temporal and spatial closures to protect spawning and recruitment, etc. There is also some legislation in place aimed at minimizing

the risk of the impact of the fishery on the habitat (e.g: in DS No. 012-2001-PE there is a specific prohibition on using a device called "antifango" in purse seines) (Hervas & Medley 2015).

As indicated above, regulation Supreme Decree N° 005-2012-PRODUCE established fishery zones in the country allocating the area between 0 to 5 nm to the artisanal fleet and the area between 5 to 10 nm to the small-scale fleet oriented to direct human consumption. Although the main aim of this regulation was to reduce conflicts between the artisanal and the industrial fleet and to promote the use of Anchoveta landings for DHC, it also helps to reduce the impact of the industrial fishery on coastal resources.

Therefore, even though, the purse seine gear is not considered a gear with the potential to have significant negative impacts on physical habitats, measures are in place to protect habitats. **Sub-clause F2.3 is met.**

References

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Standard clause 1.3.3.2

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

Anchoveta is highly dependent on environmental events, such as the El Niño-Southern Oscillation (ENSO) events which affect upwelling, fish abundance and distribution of the species, often leading to stock crashes and cascading social and

economic impacts. Synchronic regime shifts in abundance between Anchoveta, sardines and other low trophic level (LTL) species from north to south in the HCLME have been also described (Cubillos et al. 2007). Data on environmental factors (water temperature, phytoplankton and zooplankton, etc) is collected by the IMARPE during the hydrographic surveys and taking into consideration during the assessment of the Anchoveta stocks.

Due to the low trophic level of the species, Anchoveta is also a key resource for some marine species in the Humboldt current large marine ecosystem (HCLME), such as ETP species which rely on it. IMARPE has highlighted 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 guaranty the TAC (fishery removals) set by the authorities at the beginning of each fishing season considers the needs of the entire ecosystem.

The Anchoveta fishery is managed by the Peruvian government based on methods applied for single-species fisheries. However, management measures are in place to protect the species (temporally spawning and recruitment closures), Minimum Landing Size (MLS), restricted areas (five-mile artisanal-exclusive zone near the shoreline) and access to the fishery, etc also protect the environment and the species which rely on it. The increase pressure on the stock exerted in Peru by the reduction industry, due to the growing international demand for fishmeal and fish oil, has led authorities to gradually tighten fisheries management regulations (especially those pertaining to the exploitation of Anchoveta) towards an Ecosystem Approach to Fisheries (Avadi et al, 2014).

Therefore, the broader ecosystem within which the fishery occurs is considered during the management decision-making process, so **sub-clause F3.1 is met.**

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

As indicated above, the HCLME is a high productivity ecosystem which supports large populations of seabirds and marine mammals that depend on the abundance of pelagic species. Some seabirds species such as the guanay (*Phalacrocorax bougainvillii*), booby (*Sula variegata*) and pelican (*Pelecanus thagus*) are specialized in eating anchovies and its abundances have not recovered since the El Nino 1964-65 event (Chavez et al. 2008), despite that anchovies have maintained high abundances levels since 1992. Several hypotheses have been presented to explain this fact: such as environmental events (increased frequency of El Niño events since 1957) or the increasing human presence in nesting zones which may have impacted seabird populations (Serra et al. 2012). Fishery related issues have been also described. Fishing activity may be hampering the recovery of guano-producing birds (Goya 2000). And it has been indicated that pelagic fisheries, which typically concentrate near main upwelling centers, remove an important proportion of the fish production, which affects trophic interactions (Thiel et al. 2007) (Serra et al. 2012). Bertrand et. al. (2012) found that the foraging efficiency of breeding seabirds may be significantly affected by not only the global quantity, but also the temporal and spatial patterns of fishery removals. Therefore, it seems clear that the greatest impact of the assessed fishery might be the decrease in the availability of the Anchoveta as a prey for these species that depend on it (Hervas & Medley 2015), and that an ecosystem approach to fisheries management should limit the risk of local depletion for some of these protected species.

However, as indicated above, the fishery has no impact on the habitat and a relatively low impact on ETP species. TACs are set by the authorities taking into consideration the predator species which rely on the resource. And the target stock is considered to be above the MSY.

It is concluded then that the fishery has not a significant negative impact on the marine ecosystem. **Sub-clause F3.2 is met.**

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

IMARPE has attempted to quantify the needs of the HLCME ecosystem and the species which rely on Anchoveta. A recent ecosystem study conducted in the area 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 tonnes per km^2 per year 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 % B0), 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).

Advice provided by the IMARPE to avoid the catch of juveniles of the stock (sizes< 12 cm), the stock is closely monitored and management measures implemented, such as fishing closures (area and temporal closures) when the juvenile bycatch limit (10%) is surpassed. Furthermore, the TACs are set in regard to MSY reference points, and the southern Anchoveta stock is considered to be above the MSY.

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. **Sub-clause F3.3 is met.**

References

Avadí, Á., Vázquez-Rowe, I. & Fréon. F. 2014. Eco-efficiency assessment of the Peruvian Anchoveta steel and wooden fleets using the LCA+DEA framework, Journal of Cleaner Production (2014), http://dx.doi.org/10.1016/j.jclepro.2014.01.047

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Standard clause 1.3.3.2

MarinTrust Fishery Assessment Peer Review One

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

Fishery under assessment	Peruvian anchovy
Management authority (Country/State)	Peru Ministry of Production (PRODUCE)
Main species	Anchoveta (*Engraulis ringens*)
Fishery location	From 16° South to southern border Central-Southern Peru stock FAO 87 (Southeastern Pacific Ocean)
Gear type(s)	Purse seine (industrial fleet)
Overall recommendation. (Approve/ Fail)	Approve

Summary: in this section, provide any additional information about the fishery that the reviewers feel is significant to their decision.
The Peruvian anchoveta shared stock is separately managed by Peru and Chile, but a cooperation agreement exists among IMARPE (Peru) and IFOP (Chile) to annual exchange of information and knowledge. Furthermore, the UNDP-GEF Humboldt 2 Project has started its operation. One of the most important expected outcomes of the project is to develop improvements to the management of shared stocks including anchovy. In that case, the main goal is to develop compatible scientific and management actions and protocols to strengthen the sustainability of the fishery, including its MSC certification.

I disagree with the mention of an important by catch of Anchoa nasus in this fishery. Longnose anchoveta is a species inhabitant of the equatorial zone and is rarely observed in the central and southern coast of Peru. However, during strong El Nino events (such as during 1997-98) this specie can be distributed further south when equatorial waters flow southern ward. But this is uncommon. In 1997 the Peruvian legislation considered as a single fishery the one of *A. nasus* and *E. ringens* when both species were observed sharing common areas. At that time the control systems were weak, so that for practical reasons and to avoid possible mispreporting or subreporting, the management rules included as one those two species. But anyway, in the southern Peru this is not the case since Longnose anchovy does not distribute in that area. Under the modern controls ruling now this fishery the legislation should separate again *Engraulis ringens* from *Anchoa nasus* because the sampling at landing points can detect the percentage of catches of the two species; that was not the case in 1997 when precautionarily the two species started to be managed as one.

Regarding Clause F1.1 the assessor has considered the Salvamares Program (SP) of the National Fisheries Society (SNP) as collecting by catch data only. However, SNP founded in 2017 the SP with the aim to collect data on interaction and releases of individuals of ETP species that can accidentally be caught during fishing sets (in the two anchovy fisheries and for the jack and chub mackerel ones). Several studies are underway using the abundant collected ETP data. A summary of achievements of the SP is going to be introduced for first time to the scientific community during the Second Conference of Eastern Boundary Upwelling System (EBUS) to be held in Lima (19 to 23th September 2022). That study included the description of the interactions of ETP species with the fleet, which can be high though letal events are actually low. Another research is underway by the Universidad Peruana Cayetano Heredia (UPCH) using ETP data collected by another older program conducted by one of the larger fishing companies (Tecnologica de Alimentos S.A. -TASA-). That program is called "Cuidamar", and was founded in 2008. So that to date there are sources of ETP data (besides oceanographic, biologic and acoustic data) collected under the scope of SP and Cuidamar. In my personal view the fishery does met the F1.1 clause.

General Comments on the Draft Report provided to the peer reviewer

The assessor determined that the fishery fails the Marin Trust standard based on the unknown by catch of Longnose anchovy and the lack of ETP evidence of a low impact of the fishery. The assessor also wonders on MCS compliance, being that the systems operating in the north-central fishery are the same in the south. The related and detailed information can be requested to the PRODUCE under the transparency law, detailed data can be also requested to IMARPE under the scope os the same law. The SP and Cuidamar data can be requested to SNP and TASA. The annual catches in the southern Peru are clearly below the issued quotas (actual F far below Fmsy) because the fishing companies are not performing a significant fishing effort in the zone since 2011 when the "fishing windows" system was cancelled by the regional governments (Arequipa, Moquegua and Tacna), which refused that industry vessels can operate inside the first five nautical miles. In conclusion, and considering the provided arguments, in my personal opinion, the fishery approves the Marin Trust v 2.0 for the production of fishmeal and fish oil.

Summary of Peer Review Outcomes

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

	YES	NO	See Notes
A – Fishery Assessment			
1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	X		

2. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?		X	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	X
Category B Species			
Category C Species	X		
Category D Species		X	X
Section F – Further Impacts		X	X

Detailed Peer Review Justification

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

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

Boxes may be extended if more space is required.

1. Is the scoring of the fishery consistent with the MarinTrust standard, and clearly based on the evidence presented in the assessment report?
No, there is information that the assessor has not considered for his evaluation. I refer specifically to the by catch of Longnose anchovy and the ETP species. See my notes in the Summary and General comments sections.
Certification body response

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

3. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?
No, under the current management rules Longnose anchovy catches cannot be considered by catch. Furthermore, Longnose anchovy very rarely distributes in the southern Peru. Please, see my notes in the Summary and General comments sections.
Certification body response

3M. Are the scores in "Section M – Management" clearly justified?	
M1.1 There is an organisation responsible for managing the fishery.	Yes
There is an organisation responsible for collecting data and assessing the fishery.	Yes
Fishery management organisations are publicly committed to sustainability.	Yes
Fishery management organisations are legally empowered to take management actions.	Yes
There is a consultation process through which fishery stakeholders are engaged in decision-making.	Yes
The decision-making process is transparent, with processes and results publicly available.	Yes
Certification body response	

3A. Are the "Category A Species" scores clearly justified?
No, Longnose anchovy is not by catch, it is a Category A under the current Peruvian legislation, although it is rarely distributed in the southern Peru. Reference: Legal Decree 1084 that rules the industrial anchovy fishery that included the steel and wood fleets. That decree was issued in 2008 to establish the quota system by vessels targeting both anchovy (E. ringnes) and Longnose anchovy (A. nasus).
Certification body response

3B. Are the "Category B Species" scores clearly justified?
n.a.
Certification body response

3C. Are the "Category C Species" scores clearly justified?
Yes
Certification body response

3D. Are the "Category D Species" scores clearly justified?
Yes, but not for Longnose anchovy

Certification body response

3F. Are the scores in "Section F – Further Impacts" clearly justified?
No, I refer to the availability of ETP data obtained by SNP and TASA, those programs (Salvamares and Cuidamar respectively) have even received national and international awards. That was not considered by the assessor. All the collected evidence indicate that impact of the fishery on ETP species is actually low.
Certification body response

Optional: General comments on the Peer Review Draft Report
The assessor wonders whether in the southern anchovy fishery there are or there are not the same problems that in the central north fishery. In the southern Peru, there are no problems related to illegal fishing of anchovy, or the illegal production of fishmeal or fish oil. By the contrary, in the last decade several fishmeal plants have been closed because the reduced interest of the companies to operate in the zone after the "fishing windows" systems was terminated in 2011 by the regional governments of the southern Peru. IMARPE does not recommend areas to be closed, that task is performed daily by PRODUCE by using the electronic logbook system. The opposite has been described by the assessor. There is a close MCS system in southern Peru, not only in the north-central area, which includes the daily closing of areas to fishing due to the presence of juvenile fish by using the VMS system.
Certification body response

MarinTrust Fishery Assessment Peer Review Two

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

Fishery under assessment	Whole fishery assessment – Anchoveta (*Engraulis ringens*) (Southern Peru stock)	
Management authority (Country/State)	Peru Ministry of Production (PRODUCE)	
Main species	Anchoveta (*Engraulis ringens*)	
Fishery location	From 16° South to southern border - FAO 87 (Southeastern Pacific Ocean)	
Gear type(s)	Purse seine	
Overall recommendation. (Approve/ Fail)	CAB	PASS
	Peer Review	PASS

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

The peer reviewer agrees with all scoring which has been clearly addressed and evidenced throughout. A few recommendations are made throughout, but this does not impact overall PASS but would strengthen rationales and prepare the client for future data gaps.

General Comments on the Draft Report provided to the peer reviewer

The opening few tables were missing information, and there were a few un-accepted tracked changes, but otherwise, the report is completed to a high level.

Summary of Peer Review Outcomes

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

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

Detailed Peer Review Justification

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

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

Boxes may be extended if more space is required.

1. Is the scoring of the fishery consistent with the MarinTrust standard, and clearly based on the evidence presented in the assessment report? **YES**
All scoring sections of the report have been completed, and evidence provided for each requirement in line with MT requirements and associated guidance. A few comments are made to increase clarity and strengthen the scoring of the fishery against MT requirements.
Certification body response

2. Has the fishery assessment been fully completed, using the recognised MARINTRUST fishery assessment methodology and associated guidance? **PARTIALLY**
All scoring sections of the report have been completed.   The Client details and CAB name is missing from the opening tables.   Furthermore, the internal peer review comments are missing.
Certification body response

3. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?
There are three species scored, Anchovy (*Engraulis ringens*), Chilean jack mackerel (*Trachurus murphyi*), and Munida/squat lobster (*Pleuroncodes monodon*). There is a species-specific management plan in place for Anchoveta and Jack Mackerel, therefore the auditor has correctly designated the majority as Category A species and Jack Mackerel as a Category C species (<5% of the total catch). Mudina is scored under Category D.   The peer reviewer however also notes the following "*Based on the above references, three species have been selected here as a bycatch in the anchovy fishery: **Longnose anchovy**, Munida and Jack mackerel.*", and agrees Longnose anchovy should be considered but is currently missing from the MT scoring.   The comments below consider the three species currently scored only.
Certification body response

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

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
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.	PARTIAL
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

M2.4 does not evidence of any compliance statistics which are specific to the fishery and vessels under assessment. It would be good to include the actual number of infractions e.g., the number of inspections which resulted in infractions for incorrect gear, not recorded by-catch, no VMS etc...

Although this could be improved, the fact there is high observer coverage and mandatory inspections give confidence to M2.4 is ultimately being met.

Certification body response

3A. Are the "Category A Species" scores clearly justified? **YES**
I agree with the scoring outcome and the rationale is clearly justified.
Certification body response

3B. Are the "Category B Species" scores clearly justified? **N.A.**
N.A.
Certification body response

3C. Are the "Category C Species" scores clearly justified? **YES**
I agree with the scoring outcome and the rationale is clearly justified.
Certification body response

3D. Are the "Category D Species" scores clearly justified? YES
I agree with the scoring outcome and the rationale is clearly justified.
Certification body response

3F. Are the scores in "Section F – Further Impacts" clearly justified? **YES**
F1.1 _ I agree with the scoring outcome and the rationale is clearly justified.
F1.2 _ I agree with the scoring outcome and the rationale is clearly justified. Recommendations have been made to improve clarity and strengthen scoring.
F1.3 _ I agree with the scoring outcome and the rationale is clearly justified. Recommendations have been made to improve clarity and strengthen scoring.
F2.1 _ I agree with the scoring outcome and the rationale is clearly justified.
F2.2 _ I agree with the scoring outcome and the rationale is clearly justified
F2.3 _ I agree with the scoring outcome and the rationale is clearly justified.
F3.1 _ I agree with the scoring outcome and the rationale is clearly justified. Recommendations have been made to improve clarity and strengthen scoring.
F3.2 _ I agree with the scoring outcome and the rationale is clearly justified.
F3.3 _ I agree with the scoring outcome and the rationale is clearly justified.
Certification body response
F1.2 – Where mortality rates are discussed, for the more vulnerable ETP species, post-capture mortality should be considered and referenced. F1.3 – The auditor should consider if marine mammals are being intentionally set on, and the implications for scoring management measures. Furthermore, bird species interaction is particularly high, so it would be good to see what additional management measures, specific to birds, have been considered or implemented. If none are in place a recommendation should be made to the client to release a report exploring the impact of the fishery on bird species and what, if any, measurements are needed. F3.1 – It's great the client records the number of interactions with the seabed, but I'd recommend they go further to fill a potentially significant data gap ahead of future audits. Why are gears interacting, is it in specific areas, what monitoring of the seabed state over time is in place. I'd also recommend that the onsite auditor checks the catch composition for other benthic species as this could be an indicator that gears are interacting more with the seabed than reported. Finally, it's interesting there is a high % of lobster caught. Is there a reason for this? Does it co-inside with interactions with the seabed or specific life stages of the lobster where they are higher up in the water column.

Optional: General comments on the Peer Review Draft Report
No further comments.
Certification body response