

MarinTrust Standard V2

Whole fish Fishery Assessment WF02

Anchovy (*Engraulis ringens*)
in FAO 87, northern border of
Peruvian EEZ to 16° South

MarinTrust Programme

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Table 1 Application details and summary of the assessment outcome

Application de	tails ar	nd summary of the asse	ssment outcome			
Name(s):	Name(s): Supe (CFG Investments SAC), Huacho (Pesquera Exalmar SAA), Chicama (Pesquera Exalmar SAA), Chancay (COPEINCA), Chancay (Pesquera Centinela SAC), Supe (Pesquera Diamente SA), Vegueta (TASA), Pesquera Caral, Bayovar, Pisco Norte (Pesquera Diamante SA), Pesquera Jada SA, Chimbote (TASA), Coischo (Pesquera Hayduk SA), Callao (TASA), Chicama Norte (Malabrigo), Tambo de Mora (Pesquera Centinela SAC), Chimbote (COPEINCA), Callao (Pesquera Diamante SA), Chimbote (Pesquera Centinela SAC), Pisco (Austral Group SAA), Samanco (TASA), Chimbote (Compañía Pesquera del Pacifico Centro), Malabrigo (TASA), Coishco (Pesquera Cantabria SA), Callao (Pesquera Exalmar SAA), Supe (TASA), Chancay (Austral Group SAA), Ilo (Austral Group SAA), Tambo de Mora (Pesquera Exalmar SAA), Colpex International SAC, Malabrigo (Pesquera Diamante SA), Chimbote (Pesquera Exalmar SAA), Chimbote (CFG Investments SAC), Vegueta (Pesquera Hayduk SA), Pesquera Capricornio SA - Callao, Pisco Sur (TASA), Tambo de Mora (CFG Investments SAC)					
Country:	Peru					
Email address:			Applicant Code			
Certification B			NCE / Clab	al Twee Contiferation Ind		
Assessor Nan	-	ification Body: CB Peer Reviewer	Assessment Days	al Trust Certification Ltd Initial/Surveillance/Re-approval		
Ana Elisa Almeida Ayres		Léa Lebechnech	2	Surveillance 2		
Assessment Pe	,		August 2024 – August 2025			
Scope Details						
Management Aut	hority (Country/State)	Ministry o	f Production (PRODUCE)		
Main Species				vy (Engraulis ringens) kerel (Scomber japonicus)		
Fishery Location			FAO 87, northern bo	order of Peruvian EEZ to 16° South		
Gear Type(s)			Purse s	seine (industrial fleet)		
Outcome of As	sessm	ent				
Overall Outcome			APPROVED			
Clauses Failed				NONE		
CB Peer Review Evaluation			APPROVED – Agree	with the assessor's determination		
Fishery Assessme	nt Peer	Review Group Evaluation	APPROVED – Se	e full comments in Appendix B		
Recommendation	1			APPROVED		



Table 2. Assessment Determination

Assessment Determination

Anchovy (*Engraulis ringens*) [anchoveta] 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. Two stocks have been identified in Peruvian water:

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

The anchovy fishery is the largest monospecific fishery of the world. This report assesses the purse seine fishery of the anchovy fishery from northern border of Peruvian EEZ to 16° south Peru (central-northern Peru). There are two Fishery Improvement Programs - FIPs in place for Peru anchovy covering the northern-central region since January 2017 with projected end date on December 2024: small scale purse-seine (direct human consumption) and industrial fishery (indirect human consumption).

For deciding which species would be included in this assessment, it was selected the species that composed more than 0.1% of the on the second fishery season of 2023, which started in the end of October 2023, and the beginning of the 2024 fishing season, which started in mid-April 2024: anchovy (~99.9%) and chub mackerel (~0.1%). Both have defined reference points, thus they were assessed under Category A and C, respectively, according to the contribution to the catches.

It is important to notice that there was a Coastal Niño event in the beginning of 2023, which influenced the pelagic subsystem of the Peruvian marine ecosystem, and consequently, catches composition of the first fishing season in 2023 and the MarinTrust assessment from previous year covered that. The catches of the following seasons have been more specific than the previous one, which was quite atypical.

Neither anchovy nor chub mackerel is categorized as Endangered or Critically Endangered on the International Union for Conservation of Nature's Red List of Threatened Species (IUCN's Red List), nor do they appear in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices; therefore, they are eligible for approval for use as MarinTrust whole fish raw material

The Peruvian fishing sector is governed by the General Fisheries Law (LGP Law № 25977) promulgated on December 21, 1992. The Supreme Decree No. 021-2008-PRODUCE approved the Regulations of Legislative Decree No. 1084, the Law on maximum catch limits per vessel, which contains the complementary rules to it and establishes the procedures for applying the fishing management regime applicable to the extraction intended for indirect human consumption of the anchovy and white anchovy resources (*Engraulis ringens* and *Anchoa nasus*). The highest authority is the Ministry of Production − PRODUCE (*Ministerio de la Producción*). Under PRODUCE, there is a Vice-ministerial Office of Fishery and Aquaculture. Marine Institute of Peru − IMARPE is an entity attached to the PRODUCE, which conducts scientific research and provides advice and technical support to the government on fisheries issues. Each year, fishing is divided into two seasons. Hydroacoustic surveys are conducted and environmental and biological data are collected by IMARPE before each fishing season. The stock is assessed based on these data and a Maximum Limit of Total Allowable Catch - LMTCP is recommended for anchovy and longnose anchovy together.

The implementation and enforcement of fisheries laws and regulations is one of the stated functions of PRODUCE, through the General Directorate of Supervision, Inspection and Sanction – DGSFS. Monitoring is conducted at sea by compliance observers and at port by PRODUCE. Third-party operators conduct landing operations verification at designated landing sites as well. The national observer program ("Programa Bitácoras de Pesca – PBP"), 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. The surveillance system is so strong, that is difficult not to comply.

The second fishing season of anchovy in 2023 was from 26th October 2023 to January 13rd 2024, and landings composed 1,270,751 tons of anchovy, which represented 76% of the LMCTP. On 01st April 2024, the estimated biomass was 9,978,705 tons, being well above the limit and target reference point for the spawning biomass.



IMARPE recommended an exploitation rate below 0.35 (E<0.35) for the first 2024 fishing season of anchovy and longnose anchovy (*anchoveta blanca*).

In Peru, there are two onboard observer programs that report incidental catches in the pelagic fisheries (PBP and SALVAMARES). There are many interactions of anchovy fishery with Endangered, Threatened, Protected-ETP species, but the mortality rates are low and there are several measures in place to minimise the impacts on them.

Annual landings of chub mackerel are recorded and the biomass is above the limit reference point in the most recent assessment.

The fishery does not have a significant negative impact on physical habitats as the gear used by the industry, purse seine, is pelagic, meaning that does not have a direct impact on the seabed.

Several management measures are in place to protect the species (temporally spawning and recruitment closures), Minimum Landing Size, catch's bycatch restrained to 5%, restricted areas and access to the fishery, updates on LMTCP according to fishing and environmental biological factors through the year, etc, which protect the environment and the species which rely on anchovy. Although anchovy is prey of several species, studies indicated that these species' dietary necessities have been adequately met in recent years and anchovy fishery is not exerting an adverse influence on species recovery.

The assessor recommends the approval of anchovy stock in FAO 87, northern border of Peruvian EEZ to 16° south of Peru for the production of fishmeal and/or fish oil under the current MarinTrust Whole fish Standard (v 2.2).

Fishery Assessment Peer Review Comments

CB Peer Review Comments:

The internal peer reviewer agrees with the assessor's determination, noting that the management framework and surveillance, control and enforcement system continue to meet the requirements of the MarinTrust Standard and globally remain the same as last year's assessment.

The peer reviewer agrees with the species classification: the selected species are the ones that composed more than 0.1% of the second fishery season of 2023, which started in the end of October 2023, and the beginning of the 2024 fishing season, which started in mid-April 2024. They are anchovy (~99.9%) and chub mackerel (~0.1%). Both have defined reference points, thus they were assessed under Category A and C, respectively, according to the contribution to the catches.

The peer reviewer acknowledges the Coastal Niño event in the beginning of 2023, which influenced the pelagic subsystem of the Peruvian marine ecosystem, and consequently, the catches of the following seasons have been more specific than the previous one, which was quite atypical.

The main target species in this report is anchovy, being still the northern-central Peruvian stock, assessed and managed by Peru. It also continues to meet requirements for data collection, stock assessment, harvest strategy and is in a healthy status as its estimated biomass being well above the limit reference point. Consequently, it passes Category A.

The peer reviewer also agrees with the assessment of chub mackerel, comprising the bulk of the remainder of the catch, which is the bycatch species. The peer reviewer also agrees with the assessment of this species under Category C. Fishery removals of the species in the fishery under assessment are included in the stock assessment



process, and the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point. Consequently, it passes Category C.

As last year, the peer reviewer notes the indirect impacts of the fishery on endangered/declining ETP bird species and measures to address this including temporal closures, which is showing some success, the consideration of forage requirements in the small pelagic stock assessment process and further mitigation provided by the lack of full uptake of the TAC. The impact of the fishery on the habitat is considered very low to absent, as it is a pelagic fishery.

Overall, the internal peer reviewer agrees that the species listed in this report, are recommended for approval for use in the assessment area under the current Marin Trust Standard v 2.0 for whole fish.

Fishery Assessment Peer Review Comments:

Although I agree all the scores, I think they are necessary precisions to make to the assessment. The more important of them is the fact that the industrial fishery of anchovy is managed according to Legal Decree issued in 2008 (DL-1084), not the General Fisheries Law (LGP Law Nº 25977). The DL-1084 consists in the assignation of fishing quotas by vessels, and is considered a successful management system after 16 years of its implementation.

For the section 'Assessment Determination' I would like to make the following comments:

It is now proven that anchovy is able to distribute in the Gulf of Guayaquil, in Ecuadorian waters, although there is no fishery targeting this specie there. This was published by the Public Institute of Aquaculture and Fishing (IPIAP, 2023).

It is mentioned that only industrial landings are used in the production of fishmeal and fish oil. That is not correct both the small-scale fishing vessels and artisan boats are allowed to destinate 40% of their catches to this use. Also, viscera produced in these two segments are used in producing fishmeal and fish oil.

In this industrial fishery it is allowed 5% in volume of other species to be used for fishmeal and fish oil. Chub mackerel has its own regulation (the same as for Jack mackerel), it is forbidden to use those fish in producing fishmeal and fish oil since 2001, but it is possible that, as in this case, chub mackerel can be distributed in the same areas with anchovy.

It is important to highlight that DL-1084 is applicable not only to anchovy but to Anchoa nasus as well (white anchovy or longnose anchovy). This is due to the fact that during El Niño events it is common that A. nasus can be distributed in Peruvian waters sharing areas with anchovy. Under normal conditions A. nasus is distributed almost exclusively in Ecuador.

It is stated that the quota for the first fishing season was 1,682,000 tons, that is wrong the assigned quota was 2.45 MT, 98% of it was caught.

It is stated that "Although anchovy is prey of several species, studies indicated that these species' dietary necessities have been adequately met in recent years and anchovy fishery is not exerting an adverse influence on species recovery". This is very important statement but there is no reference to it in this section. The reference is the next (a different reference is however cited in the last paragraph of the document):

Tam, J., M. Taylo, M. Ñiquen. (2020). Ecosystem impacts of fishing the low trophic level Peruvian anchovy in the Northern Humboldt Current Ecosystem. Instituto del Mar del Perú, Callao, 12 pp.

In the text of the 'species categorization table' it is stated that: "It is hard to compile landings data as Peru publishes daily reports of the landings and rarely publish a report with compiled quantitative data of the accompanying fauna". That is not correct, the National Fisheries Society (SNP) in cooperation with the Humboldt Institute performs two annual workshops on anchovy and one workshop for chub/jack mackerel, all



the data about other species is made available voluntarily for the same. In a next review, it the assessor need this kind of information can get in contact with SNP or with IMARPE. Also he/she can consult here where detailed data is available: https://ihma.org.pe/data-de-calas-y-biometria-por-anos-y-temporadas/

Finally, there is a gross mistake in the next sentence: "IMARPE (2023) reported that the total catch of the 190 observed trips and 720 fishing hauls of the industrial anchovy fleet operating in northern Chile during the second 2023 fishing season was 30,973 tons". The Peruvian fleet cannot operate in Chilean waters.

Another mistake is this: "IMARPE (2024) reported that anchovy composed 99.94% of the total catch of the 118 observed trips and 414 fishing hauls of the industrial anchovy fleet operating in Northern Chile during April 2024, while 0.04% of the catches were composed by carrot/red squat lobster". The Peruvian fleet cannot operate in Chilean waters.

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			A1	Pass
	Anchovy (Engraulis ringens)	~ 99.9	A2	Pass
			A3	Pass
			A4	Pass
Category C	Chub mackerel (Scomber japonicus)	~0.1	Pass	



Table 5 Species Categorisation Table

Common name	Latin name	Stock	IUCN Redlist Category ¹	% of landings	Management	Category
Anchovy (anchoveta)	Engraulis ringens	Anchovy in FAO 87, from 16° south to southern of Peru stock FAO 87	LC ²	~99.9	Yes	A
Chub mackerel (caballa)	Scomber japonicus	Chub mackerel in FAO 87, from 16° south to southern of Peru stock FAO 87	LC ³	~0.1	Yes	С

Species categorisation rationale

The Peruvian anchovy fishery is the largest monospecific fishery of the world. The species composition of the accompanying fauna is highly variable and influenced by environmental conditions, especially El Niño events. It is hard to compile landings data as Peru publishes daily reports of the landings and rarely publish a report with compiled quantitative data of the accompanying fauna. For deciding which species would be included in this assessment, it was calculated an average of the percentages of the species of the accompanying fauna reported by IMARPE on the second fishery season of 2023, which started in the end of October 2023, and the beginning of the 2024 fishing season, which started in mid-April 2024 (IMARPE 2023 and 2024). It is important to notice that there was a Coastal Niño event in the beginning of 2023, which influenced the pelagic subsystem of the Peruvian marine ecosystem, and consequently, catches composition of the first fishing season in 2023 and the MarinTrust assessment from previous year covered that. The catches of the following seasons have been more specific than the previous one, the later season was quite atypical.

IMARPE (2023) reported that the total catch of the 190 observed trips and 720 fishing hauls of the industrial anchovy fleet operating in northern Peru during the second 2023 fishing season was 30,973 tons, which corresponded to 99.76% of anchovy - Engraulis ringens (anchoveta), followed by chub mackerel – Scomber japonicus (caballa) with 0.11%, skipjack tuna - Katsuwonus pelamis (barrilete) with 0.04%, carrot/red squat lobster - Pleuroncodes monodon (munida) with 0.04%, among others.

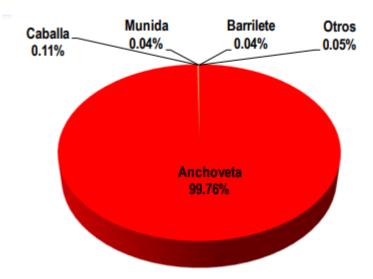


Figure 1. Catch composition of the observed trips of the industrial anchovy fleet operating in Northern Chile during the second 2023 fishing season (IMARPE, 2023).

¹ https://www.iucnredlist.org/species/183775/102904317

² https://www.iucnredlist.org/species/183775/102904317

³ https://www.iucnredlist.org/species/170306/170083106



IMARPE (2024) reported that anchovy composed 99.94% of the total catch of the 118 observed trips and 414 fishing hauls of the industrial anchovy fleet operating in Northern Peru during April 2024, while 0.04% of the catches were composed by carrot/red squat lobster.

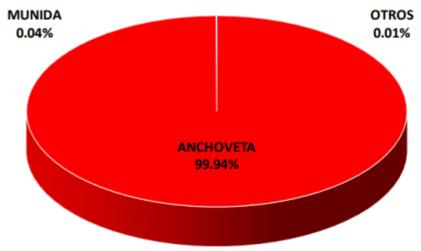


Figure 2. Catch composition of the observed trips of the industrial anchovy fleet operating in Northern Chile in April 2024 (IMARPE, 2024).

According to MarinTrust standard, species which make up less than 0.1% of landings are not included in the assessment. Thus, combining data from IMARPE (2023) and IMARPE (2024) anchovy and chub mackerel were assessed here. Reference points are defined for both stocks, thus they were assessed under Category A and C, respectively, according to the contribution to the catches.

References

IMARPE. 2023. Reporte del programa de observadores a bordo bitacoras de pesca. Reporte 2 da temporada 2023. https://www.imarpe.gob.pe/imarpe/archivos/reportes/imarpe_repo_bit%C3%A1cora_de_pesca_anchoveta_2da_temp_nc_2023.pdf

IMARPE. 2024. Reporte abril 2024 – Anchoveta. https://www.imarpe.gob.pe/imarpe/archivos/reportes/imarpe rbiore bitacora de pesca anchoveta abril 2024.pdf



MANAGEMENT

The two clauses in this section (M1, M2) relate to the general management regime applied to the fishery under assessment. The clauses should be completed by providing sufficient evidence to justify awarding each of the requirements a pass or fail rating. A fishery must meet all the minimum requirements in every clause before it can be recommended for approval.

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

There have been no changes from last year, so the information remains the same.

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

The Peruvian fishing sector is governed by the General Fisheries Law (LGP Law Nº 25977) promulgated on December 21, 1992. The Supreme Decree No. 021-2008-PRODUCE approved the Regulations of Legislative Decree No. 1084, the Law on maximum catch limits per vessel, which contains the complementary rules to it and establishes the procedures for applying the fishing management regime applicable to the extraction intended for indirect human consumption of the anchovy and white anchovy resources (*Engraulis ringens* and *Anchoa nasus*).

The highest authority is the Ministry of Production – PRODUCE (*Ministerio de la Producción*). Under PRODUCE, there is a Viceministerial Office of Fishery and Aquaculture.

PRODUCE formulate, design, execute and supervise the national and sectoral policy of fishing, aquaculture, micro and small business and industry. Regarding the fisheries sector, PRODUCE regulates the activity and promotes the harmonious development of the productive ecosystems of fisheries (Gob¹, 2024).

Vice-ministerial Office of Fishery and Aquaculture 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 and Supreme Decrees, annual catch limits and technical measures governing the fishery are published on the PRODUCE website.

There is an organisation responsible for managing the fishery. M.1.1 is met.

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

Marine Institute of Peru – IMARPE ("Instituto del Mar del Perú" in Spanish) is an entity attached to PRODUCE, which conducts scientific research and provides advice and technical support to the government on fisheries issues. IMARPE is a specialized technical body, whose functions are oriented towards the generation of scientific knowledge that allows the Peruvian State to have scientific and timely advice for the sustainable use of the living resources of the sea and continental waters (Gob², 2024). IMARPE is responsible for conductions of stock assessments, recommendations of annual catches limits, establishment of temporary authorizations for the extraction of fishes, as well as maximum tolerance of juvenile specimens as bycatch.

Two to four scientific surveys encompassing the entire Peruvian coastline are conducted annually by IMARPE. Surveys collect oceanographic and environmental data, and are used to estimate total biomass, eggs and larvae production, anchovy population size structure, and reproductive status of the 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 are estimated from the hydroacoustic 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 Maximum Limit of Total Allowable Catch LMTCP (*Límite Máximo de Captura Total Permisible*), 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. Moreover, the Supreme Decree 024/2016 create the dynamic system of closing of areas where juvenile fish was caught over 10% of the catch considering the number of fish, a system that contributes for a reduction of discards for this species.

Oliveros-Ramos *et al.* (2021); Scott (2020) stated 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 9th, 2020, PRODUCE's General Directorate of Supervision, Inspection and Sanction – DGSFS ("Dirección General de Supervisión, Fiscalización y Sanción", in Spanish) 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 LMTCP recommendations for IMARPE.

There is an organisation responsible for collecting data and assessing the fishery. M.1.2 is met.

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

The LGP Law Nº. 25,977, which is the most important law in the fishing sector, is based on sustainability as stated on its first article (Senace, 2024):

"Article 1. The purpose of this Law is to regulate the fishing activity in order to promote their <u>sustainable development</u> as a source of food, employment and income and of ensure a responsible use of hydrobiological resources, optimizing the economic benefits, in harmony with the preservation of the environment and conservation of biodiversity."

In the description of PRODUCE and IMARPE in government website, the commitment to sustainability is explicitly mentioned: PRODUCE

Gob¹(2024): "Our mission is to promote the development of agents in the productive sector, promoting innovation, quality and <u>environmental sustainability</u>, contributing to the competitiveness of the sector."

IMARPE

Gob² (2024): "We are a specialized technical body of the Ministry of Production, whose functions are oriented towards the generation of scientific knowledge that allows the Peruvian State to have scientific, truthful and timely advice for the <u>sustainable use of the living resources</u> of the sea and continental waters."

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

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

PRODUCE was created by Law N° . 27779 – 2002. The last regulation of the organization and roles of PRODUCE was approved by Supreme Decree 002-2017-PRODUCE (CDN¹, 2024).

The LGP Law Nº. 25977 is the most important law in the fishing sector and it was approved in 1992. The first major of this law was in 2008, through Legislative Decree 1027. This decree modified two articles related to PRODUCE to grant licenses for fishing activities, as following:

"Article 9. The Ministry of Production, based on scientific evidence available and socioeconomic factors, determines, depending on the type of fisheries, the fisheries management systems, allowable catch quotas, seasons and zones of fishing,



regulation of fishing effort, fishing methods, minimum sizes of capture and other regulations that require the preservation and rational exploitation of resources hydrobiological.

The administrative rights granted are subject to the ordering measures that, by means of a legal provision of a general nature, dictates the Ministry.

(...)

Article 44. Concessions, authorizations and permits are specific rights that the Ministry of Production grants a specific term for the development of activities fishing activities, in accordance with the provisions of this Law and under the conditions determined by its Regulation.

It is the responsibility of PRODUCE to verify that the administrative rights granted are exercised in strict observance of the specifications set forth in the title itself granted as well as in accordance with the conditions and legal provisions issued, in order to ensure that these are used in accordance with the interest of the Nation, the common good and within the limits and principles established in this law, in the special laws and in the norms regulations on the matter.

In case of non-compliance, the Ministry of Production, through the technical bodies corresponding, issues the administrative resolution of expiration of the right granted that allow its reversion to the State, prior to the initiation of the respective administrative procedure, which ensure respect for the right of defence of the administered and with strict subjection to due procedure."

The second major modification of the LGP Law Nº 25977 was in 2018, through Legislative Decree 1393, which regulates the interdiction of illegal fishing. This decree incorporated an article related to the enforceability of sanction resolutions imposed by PRODUCE.

The third and most recent modification was in 2023, through Law Nº 31749. This law, among other things, establishes provisions aimed at the legal protection of the first nautical miles.

Regarding IMARPE, the Legislative Decree № 95, modified by the Urgency Decree № 015-2020 (FAO, 2024), establishes:

"Article. 1 Marine Institute of Peru - IMARPE

Marine Institute of Peru - IMARPE, is a Specialized Technical Public Organization attached to the Ministry of Production, which has legal status under Internal Public Law. It constitutes a budget statement.
(...)

Article 4. Roles of Marine Institute of Peru – IMARPE:

Marine Institute of Peru - IMARPE, in accordance with the provisions of the previous articles, has the following roles:

- a) Approve, execute and evaluate scientific and technological research plans, programs and projects, linked to its purpose;
- b) Develop scientific research on marine and continental resources, the ecological factors of interaction and those that promote the development of fishing and aquaculture;
- c) Develop oceanographic and limnological investigations of the Peruvian sea and continental waters respectively;
- d) Develop technological research on extraction, preservation on board and landing;
- e) Provide the Ministry of Production with the scientific bases for the rational administration of marine and continental resources;
- f) Promote the development of scientific and technological research, as well as the training, improvement and specialization of scientific and technical researchers;
- g) Assume, by delegation of the Government, its representation before international organizations regarding its purpose;
- h) Participate with other Public Organizations in the formulation of scientific and technological policies;
- i) Coordinate, with the academy, such as universities, institutes, among others, as well as with natural or legal persons, investigations of mutual interest;
- j) Disseminate the results of their studies and research to the scientific community and the general public;



- k) Sign agreements and/or contracts with individuals and/or legal entities, national and international, to promote national technical-scientific development in matters within its competence, subject to the pertinent legal provisions; and.
- I) Others that are established by legal device."

Fishery management organisations are legally empowered to take management actions. M.1.4 is met.

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

According to LGP Law Nº 25977: "Article. 3. The State encourages the widest participation of natural or legal Peruvian persons in the fishing activity and also promotes foreign investment subject to the relevant provisions of Peruvian legislation."

The Supreme Decree No. 012-2001-PE dictates a consultation process for modifying the regime of access to the extractive activity (CDN², 2024):

- "11.2 To proceed with modifying the regime of access to the extractive activity, the Ministry of Fishing shall previously have the following information:
 - a) The will expressed in writing by the companies representing at least the 80% of the total volume of the capacity of the winery of the resources under the access regime if you intend to modify, together with 80% of the total installed capacity of them fishing industrial establishments that hold a license dedicated to processing them same resources;
 - b) The corresponding information from IMARPE; y,
 - c) The recommendations of a panel of internationally recognized scientists in terms of research, specifically convened to assess the situation of the resource and its fishing.
- 11.2 The regime of access to the aquaculture activity is constituted by the authorizations and concessions granted in accordance with the regulations on the matter.
- 11.3 The regime of access to the fishing processing activity is constituted by the installation authorizations and operating licenses granted in accordance with the provisions of the Chapter IV of Title III of this Regulation."

National Fisheries Society – SNP ("Sociedad Nacional de Pesquera", in Spanish) 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 7º 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.

According to the three-year audit conducted by MRAG for FisheryProgress of the Fishery Improvement Project Progress - FIP of Peru anchovy - industrial purse-seine fishery in northern region (FishChoice, 2019) the performance indicator "Decision making processes" of the component "Fishery specific management system" has been met and there were several advances on the participatory process in Peru fisheries last years:

"a) PRODUCE publish their proposed regulations and consult on them before they become official regulations. This was described by stakeholders at the FIP review meeting. Some evidence of this would be useful for full assessment.

The Oannes network is a communication network for the fishing industry. There are 30,000 users in this network and email list. Oannes runs social networks for the fishing industry to generate dialogue. They also represent the fishing industry in meetings with government and in FIP meetings, they can use the information from their networks to express what the sector desires. The networks contain fishermen from all sectors as well as scientists.

Since September 2019, there has been a technical consultation meeting every two weeks, which involves SNP, relevant government departments and the national industry society. Anyone in the group can put something on the agenda for discussion. This is the main conflict resolution system, and examples were provided of the system solving disputes.

There is a "Forum for sustainable fisheries and aquaculture" (http://www.fpas.pe/), whose objective is to promote dialogue and research among the different actors in fisheries and aquaculture in Peru. Forum members include regulators, NGOs,



companies and academics. The forum organizes multiple meetings per year both in Lima and regionally to discuss relevant topics such a management issues. There is also an electronic suggestions platform. This forum has increased the ability for all parties to be involved.

- b) The management system includes consultation processes and there are many ways the government engages with forums and representative groups to gather opinions and solve issues. SG 80 is likely to be met.
- c) The private industry network run by Oannes, and the and the public-private forum involves fishers from all sector and provide opportunity for all affected parties to be involved. The management system itself has informal and formal mechanisms by which all interested parties can be involved. Government meet with stakeholders and receive their proposals as standard practice. SG80 is likely to be met."

Scot (2020) reinforces compliance with consultation process in the report of analyses of relevant information directed by the Marine Stewardship Council - MSC certification requirements:

"(SI-a | SG 80) The Forum for Sustainable Fishing and Aquaculture has been strengthened. Stakeholders participating from the forum include governmental entities, non-governmental entities, academia and fishing companies. (SI b | SG 80) There is now evidence that consultation procedures take place regularly and that feedback is accepted and considered by fishing managers, as shown by the adoption of regulations for the DHC fishery following consultations in 2016 and 2017. (SI c | SG 80) PRODUCE has implemented an online platform for any interested parties to provide suggestions for improvements, facilitating public participation and engagement".

There is a consultation process through which fishery stakeholders are engaged in decision-making. M.1.5 is met.

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

In IMARPE website, it is possible to obtain several information of fishery, such as daily data of landings, biweekly reports with information of landings and sizes of the species caught, investigation reports that were used as support for the creation of Ministerial Resolutions, graphs of landings, fishing effort, sizes, distribution of catches, Catch Per Unit Effort (CPUE) per fishing season and others: https://www.imarpe.gob.pe/imarpe/index2.php?id seccion=reportes

In Peru government website, several communications and reports can be accessed, such as communications of temporal and special fisheries closures, reports of the situation of specific fish stocks and exploitation perspectives for fishing seasons, results of hydroacoustic evaluation cruises performed by IMARPE, updated of fishing LMTCPs through the year. The reports provide the support data for the management decisions for the fisheries.

From stock assessment results, LMTCPs are set for the next fishing season based on formulas explicitly set out in decision tables by IMARPE. The protocol for establishing the LMTCP is transparent, as is a summary of the most recent season of fishery data, such as landings and CPUE.

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 temporal and special closure of fisheries is announced online and is based on information provided by captains of fishing vessels through electronic logbooks to DGSFS, which gives access of this data to IMARPE for given advice. For anchovy this process is regulated through Supreme Decree N° 024-2016-PRODUCE (El Peruviano, 2016).

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

References

El Peruviano. 2016. Diario Oficial del Bicentenario. https://busquedas.elPeruviano.pe/dispositivo/NL/1453690-4

CDN¹. 2024. Supreme Decree 002-2017-PRODUCE.

https://cdn.www.gob.pe/uploads/document/file/360628/ROF.pdf?v=1568324665

CDN². 2024. Supreme Decree 012-2001-PE.

https://cdn.www.gob.pe/uploads/document/file/418473/Decreto Supremo N%C2%BA 012-2001-PE.pdf?v=1573142303



FAO. 2024. Base de datos FAOLEX. Perú (Nivel nacional). Decreto Legislativo Nº 95 - Ley del Instituto del Mar del Perú (IMARPE). https://www.fao.org/faolex/results/details/es/c/LEX-FAOC081735/

FishChoice. 2019. Three-Year Audit Template. https://fisheryprogress.org/sites/default/files/indicators-documents/Peruvian Anchovy IHC FIP Review 2019 GB2338 5.pdf#overlay-context=node/3546/actions-progress

Gob¹. 2024. Información institucional. Ministerio de la Producción. https://www.gob.pe/institucion/produce/institucional

Gob². 2024. Información institucional. Instituto del Mar del Perú. https://www.gob.pe/institucion/imarpe/institucional

IMARPE. 2015. Protocolo "Estimación de la Captura Total Permisible del Stock Sur de la Anchovy Peruviana 3pp http://www.imarpe.gob.pe/imarpe/archivos/informes/imarpe/protocolo captu stok ancho sur.pdf

Oliveros-Ramos, R., Ñiquen, M., Csirke, J., & Guevara-Carrasco, R., 2021. Management of the Peruvian Anchovy (*Engraulis ringens*) fishery in the context of climate change. Adaptive management of fisheries in response to climate change, 237. FAO Fisheries and Technical Paper No. 667., Pages 237-244. https://www.fao.org/3/cb3095en/cb3095en.pdf

Scott., Ian. 2020. Working Group Fishery Improvement Project Peru Anchovy Industrial Purse Seine (FIP- Anchovy) Component 1.2. Final. https://cedepesca.net/wp-content/uploads/2021/01/200819-FINAL-PERU-C1.2.pdf

Senace. 2024. Ley General de Pesca. DECRETO LEY № 25977. https://www.senace.gob.pe/wp-content/uploads/filebase/senacenormativa/NAS-4-8-01-D-LEY-25977.pdf

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

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

There have been no changes from last year, so the information remains the same.

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 PRODUCE, through DGSFS. Fisheries' activities and landings are controlled under a specific program approved by Ministerial Resolution N° 027-2003-PRODUCE.

Monitoring is conducted at sea via compliance observers. There is also monitoring of landings at port from PRODUCE. Third-party operators conduct landing operations verification at designated landing sites.

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).

There is an organisation responsible for monitoring compliance with fishery laws and regulations. M.2.1 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 PRODUCE, a list of penalties and applicable legislation, fines, and fishing bans are published in PRODUCE website.

Other regulations pertinent to the application of sanctions in the fishing industry include:

- General Fisheries Law N° 25977 (Articles 76 to 83)
- Supreme Decree N° 012-2001-PE Regulation of the General Fisheries Law (Articles 126 to 150)
- Supreme Decree N° 016-2007-PRODUCE: Regulation of fishing and aquaculture inspections and sanctions: Inspectors' inspection powers, including the ability to issue fines for noncompliance
- Supreme Decree N° 024-2016-PRODUCE: Control and inspection measures (fines, licence revocations)

In PRODUCE website, applications of sanctions and appeals are published as Directorial Resolutions. On the search bar it is possible to find a few applied in the last years.

There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken. 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 Vessel Monitoring System-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 Illegal, Unreported and Unregulated - IUU fishing globally, including vessels from industrial fleets.

The fishery is closed to new vessels, and all designated landing points are monitored around-the-clock to ensure that only vessels with permits are permitted to land catch. 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 Ministerial Resolution N° 306-2020, in which it specifies the criteria for determining the LMTCP 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 LMTCP for the DHC and Indirect Human Consumption - IHC sub-fisheries should not exceed the IMARPE-recommended catch rate for the anchovy stock. The DGSFS 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 used to determine IMARPE's LMTCP recommendations.

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, which is responsible for establishing the closure. 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 anchovy, bycatch) – including the monitoring of anchovy size structure and bycatch (PRODUCE 2016; Oliveros-Ramos *et al*, 2021).



According to the three-year audit conducted by MRAG for FisheryProgress of FIP of Peru anchovy - industrial purse-seine fishery in Northern region (FishChoice, 2019):

"There is thought to be good compliance in the IHC fleet with the management system, because the surveillance system is so strong, it would be difficult not to comply".

There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing. M.2.3 is met.

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 mandates 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, 2016). All 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% of fishing trips, with 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, unfavourable, neutral, neutral-unfavourable and neutral-favourable) predicted during the period. The results are presented in the form of a decision table (IMARPE, 2020; IMARPE, 2024) used by PRODUCE to set the LMTCP 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 LMTCP (Oliveros-Ramos et al., 2021).

During the anchovy assessment procedure, the estimated quantity and weight of juvenile animals landed during a fishing season (as a fraction of the LMTCP) are computed and reported to PRODUCE. This figure, referred to as the "juvenile LMTCP," provides an additional management criterion that strengthens the protection of juvenile individuals: it permits PRODUCE to close the fishery once landings reach the juvenile LMTCP, even if the full LMTCP has not been reached, thereby protecting the more diverse population during warming events (Oliveros-Ramos et al., 2021).

Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS. M.2.4 is met.

References

Arias Schreiber, M. 2012. The evolution of legal instruments and the sustainability of the Peruvian anchovy fishery. Marine Policy. https://www.sciencedirect.com/science/article/abs/pii/S0308597X11000698

FishChoice. 2019. Three-Year Audit Template. https://fisheryprogress.org/sites/default/files/indicators-documents/Peruvian Anchovy IHC FIP Review 2019 GB2338 5.pdf#overlay-context=node/3546/actions-progress

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



IMARPE. 2024. Situación del stock norte-centro de la anchoveta Peruana (*Engraulis ringens*) al 01 de abril de 2024 y perspectivas de explotación para la primera temporada de pesca del ano. https://cdn.www.gob.pe/uploads/document/file/6182656/5452946-situacion-del-stock-norte-centro-de-la-anchoveta-peruana-engraulis-ringens.pdf?v=1712877361

Oliveros-Ramos, R., Ñiquen, M., Csirke, J., & Guevara-Carrasco, R., 2021. Management of the Peruvian Anchovy (*Engraulis ringens*) fishery in the context of climate change. Adaptive management of fisheries in response to climate change, 237. FAO Fisheries and Technical Paper No. 667., Pages 237-244. https://www.fao.org/3/cb3095en/cb3095en.pdf

PRODUCE. 2016. Decreto Supremo N° 024-2016. Establece medidas para fortalecer el control y vigilancia de la actividad extractiva para la conservación y aprovechamiento sostenible del recurso Anchovy. https://busquedas.elPeruviano.pe/dispositivo/NL/1453690-4

Links	
MarinTrust Standard clause	1.3.1.3
FAO CCRF	7.7.2
GSSI	D1.09



CATEGORY A SPECIES

The four clauses in this section apply to Category A species. Clauses A1 - A4 should be completed for **each** Category A species. If there are no Category A species in the fishery under assessment, this section can be deleted. A Category A species must meet the minimum requirements of all four clauses before it can be recommended for approval. The clauses should be completed by providing sufficient evidence to justify awarding each of the requirements a pass or fail rating. The species must achieve a pass rating against all requirements to be awarded a pass overall. If the species fails any of these clauses it should be re-assessed as a Category B species.

Species Name Anchovy (Engraulis ringens) ["anchoveta", in Spanish]				
A1	Data (Collection - M	inimum Requirements	
AI	A1.1 Landings da		ta are collected such that the fishery-wide removals of this species are known.	Pass
	A1.2 Sufficient additional information is collected to enable an indication of stock status to be			Pass
		estimated.		
	•	•	Clause outcome:	Pass

A1.1 Landings 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) in designated landing sites. IMARPE collects these data and use to assess the stock. It is possible to follow daily data of landings in IMARPE website. The second fishing season of anchovy in 2023 was from 26th October 2023 to January 13rd 2024, and landings composed 1,270,751 tons of anchovy (Figure 3), which represented 76% of the LMCTP (IMARPE, 2024).

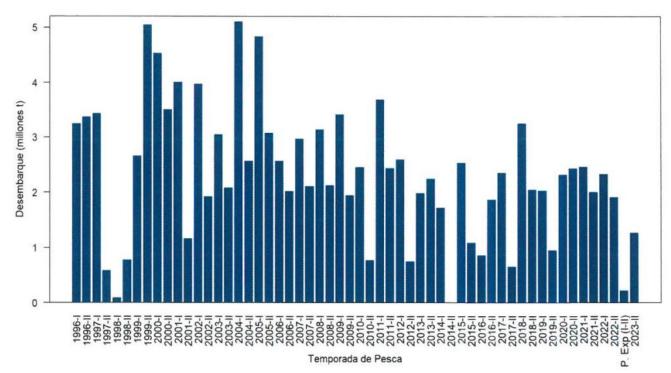


Figure 3. Annual landings of anchovy (millions t) per fishing season registered in the central-northern region of the Peruvian coast, from 1996 to 2023 (IMARPE, 2024).

Landings data are collected such that the fishery-wide removals of this species are known. A.1.1 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 that PRODUCE uses to develop fishery management policies in Peru. Since 1982, the IMARPE has monitored anchovy populations using acoustic techniques through twice-yearly hydroacoustic 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. If the scientific survey is performed during the development of anomalous conditions, the population dynamic models are used instead of direct biomass estimations.

The IMARPE's PBP deploys observers aboard fishing vessels in order to collect biological samples, while a private company collects them at ports. All data are analysed 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.

This year, in response to the 2023-2024 El Niño event, IMARPE has intensified its observations with six operations in the sea between February and November 2023. These operations have provided information on the abundance, distribution, and maturity of anchovy stock. Based on this information, LMCT was established and IMARPE closed some areas with high abundance of juveniles (IMARPE, 2024).

Sufficient additional information is collected to enable an indication of stock status to be estimated. A.1.2 is met.

References

Arias Schreiber, M. & Halliday, A. 2013. Uncommon among the commons? Disentangling the sustainability of the Peruvian anchovy fishery. Ecology and Society 18(2): 12. http://dx.doi.org/10.5751/ES-05319-180212

Arias Schreiber, M. 2013. Institutions for sustainable fisheries governance – the case of the commercial Peruvian anchovy fishery. Phd Dissertation, Bremen University. http://elib.suub.uni-bremen.de/edocs/00103233-1.pdf

IMARPE. 2024. Situación del stock norte-centro de la anchoveta peruana (*Engraulis ringens*) al 01 de abril de 2024 y perspectivas de explotación para la primera temporada de pesca del ano. https://cdn.www.gob.pe/uploads/document/file/6182656/5452946-situacion-del-stock-norte-centro-de-la-anchoveta-peruana-engraulis-ringens.pdf?v=1712877361

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

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

The stock assessment is conducted annually by IMARPE. An acoustic survey is performed before every fishing season and a survey during the winter is undertaken for assessing the spawning biomass through the collection of fish eggs. The stock assessment report summarises the full "situation of the stock", including extensive discussion of the outcomes of the hydroacoustic cruises, the oceanographic conditions, stock data originating from the fishery, the fishing perspective for the next fishing period, and many other variables. The assessment also incorporates the catch data collected from the fishery via



logbooks and landing inspections, the characteristics of the species, the Catch Per Unit Effort - CPUE, size distribution, spawning biomass and all biological, fishing and ecosystem information available (IMARPE, 2024).

A stock assessment is conducted annually and it considers all fishery removals and the biological characteristics of the species.

A.2.1 is met.

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

The IMARPE stock assessment provides an indication of the estimated biomass at the start of the fishing season, based primarily on the results of the hydroacoustic cruises, and this number is updated during the fishing season. On 01st April 2024, the estimated biomass was 9,978,705 tons (IMARPE, 2024).

Two main reference points are established for the stock:

- The target reference point for the spawning biomass is 5,000,000 tons;
- The limit reference point for the spawning biomass is 4,000,000 tons.

The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy. A.2.2 is met.

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

Anchovy stock is strongly dependent on environmental variables, resulting in rapid fluctuations in biomass. Considering the 2023-2024 coastal El Niño and the probability of a global 2024 El Niño, the latest stock assessment has considered several



exploitation rates (E) for different scenarios: (favourable, unfavourable, neutral, neutral-unfavourable and neutral-favourable) [Figure 6] for establishing the LMTCP using the decision tables set in IMARPE (2020). IMARPE recommends an exploitation rate below 0.35 (E<0.35) [IMARPE, 2024]. DESFAVORABLE NEUTRODESFAVORABLE 9 70 60 P 8 5 5 50 3 30 2 20 20 0 0.20 0.00 0.20 0.35 Tasa de Explotación (E) Tasa de Explotación (E) Cuota NEUTROFAVORABLE 10 10 8 8 80 70 6 6 60 de 1 60 de 50 1888 Biomasa 3 30 3 20 10 10 0 o 0.00 0.35 0.05 0.10 0.20 0.30 0.35 0.00 0.05 0.10 0.15 0.20 0.25 Tasa de Explotación (E) Tasa de Explotación (E) - Cuota Cuota 90 60 ap Biomasa 2 10 0 0 0.00 0.05 0.20 0.35

Figure 4. Figures of decision tables associated to the different environmental scenarios for the first 2024 fishing season of anchovy stock in northern Peru. (IMARPE, 2024). The x-axis contains the different exploitation rates (E) and for each value of E, it is marked the corresponding catch quota (red dots, whose values are reading in the left side of y-axis). The black dots corresponding to the spawning biomass that, according to projections, would be available for the following reproductive process by applying each exploitation rate. The yellow bar marks the target reference point for the spawning biomass and the limit reference point for the spawning biomass. The blue line corresponds to the risk or probability of having a spawning biomass lower than 5,000,000 tons (whose scale is reading on the left y-axis) after applying each exploitation rate (IMARPE, 2024).



The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status. A.2.3 is met.

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

The FIP in force has achieved formal collaboration with IMARPE and a signed memorandum of understanding in 2018 with PRODUCE which established terms for technical collaboration towards fisheries' sustainability. A consultant's report was presented (Dec 2019) to IMARPE and SNP on the role of the Management Strategy Evaluation (MSE) approach to, among other issues, improve the determination of stock status in the fishery. Different combinations of target harvest rate and different stock size thresholds were tested. Following presentation of results of the MSE, IMARPE have been requested to add more harvest strategies and operating models and to generate more discussion with stakeholders on improving the quality of stock assessments.

Every five years, IMARPE use to invite experts to evaluate the used methodologies, results and instruments. This year, August 2024, a mission of experts from Scotland, USA and Spain are performing an auditory to assess the current methods used by IMARPE.

According to MBA (2023): "IMARPE methods to assess the anchovy stock were peer reviewed by an international panel of experts in 2009 and again by FAO experts in 2014 {FAO 2014}. FAO 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 fleets, etc. However, it was concluded that there is a high standard scientific support towards the management of fisheries in Peru {FAO 2014}."

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

A2.5 The assessment is made publicly available.

Reports of stock assessments and advice on LMTCP for the anchovy stocks can be found on Peru government website under the PRODUCE-IMARPE option: https://www.gob.pe/institucion/imarpe/informes-publicaciones?sheet=40

In IMARPE website, it is possible to obtain several information of fishery, which are used as support for the management decisions, such as daily data of landings, biweekly reports with information of landings and sizes of the species caught, investigation reports that were used as support for the creation of Ministerial Resolutions, graphs of landings, fishing effort, sizes, distribution of catches, CPUE per fishing season and others: https://www.imarpe.gob.pe/imarpe/index2.php?id seccion=reportes

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

References

MBA. 2023. Draft Assessment for Review Anchovy, Peruvian (Chile, Peru) *Engraulis ringens*. Monterrey Bay Aquarium. Seafood Watch. https://www.seafoodwatch.org/globalassets/sfw/pdf/expert-review/2022/100322/seafood-watch-peruvian-anchovy-chile-peru-27723.pdf

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

IMARPE. 2024. Situación del stock norte-centro de la anchoveta peruana (*Engraulis ringens*) al 01 de abril de 2024 y perspectivas de explotación para la primera temporada de pesca del ano.

https://cdn.www.gob.pe/uploads/document/file/6182656/5452946-situacion-del-stock-norte-centro-de-la-anchoveta-peruana-engraulis-ringens.pdf?v=1712877361

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								
73	A3.1	There is a mechanism in place by which total fishing mortality of this species is restricted.	Pass						
	A3.2	Total fishery removals of this species do not regularly exceed the level indicated or stated in the	Pass						
		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.								
	A3.3	Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).	Pass						
	•	Clause outcome:	Pass						

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

In order to monitor the resources and compliance of fishing fleets, four programs are in place: the logbooks program (PBP) with onboard observers since 1996 to cover the fleet behaviour, species and size composition of catches, discards, and interactions with other species and the habitat; gathering information at the landing ports; the satellite vessel tracking system (SISESAT); and scientific surveys. There are also private companies controlling landings, such as SGS and Intertek.

As indicated previously, the catch of anchovy in the area is regulated through an annual LMTCP set by PRODUCE based on the recommendations given by IMARPE. Catches are monitored on a daily basis during the fishing season and it is closed when the LMTCP is reached (if it is not, a date limit is previously set). Temporal bans are also set to protect the stock when the number of juveniles in the catch surpasses a 10% limit.

There is a mechanism in place by which total fishing mortality of this species is restricted. A.3.1 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.

Anchovy catches are closely monitored by the authorities. The LMTCP has never been exceeded (Scot, 2020). During the second 2023 fishing season 76% of LMTCP was taken (IMARPE, 2024).

In April 2024, the estimated biomass was 9,978,705 tons (IMARPE, 2024), being well above the target reference point for the spawning biomass of 5,000,000 tons and the limit reference point for the spawning biomass of 4,000,000 tons, as well in previous years in history (Figure 5).



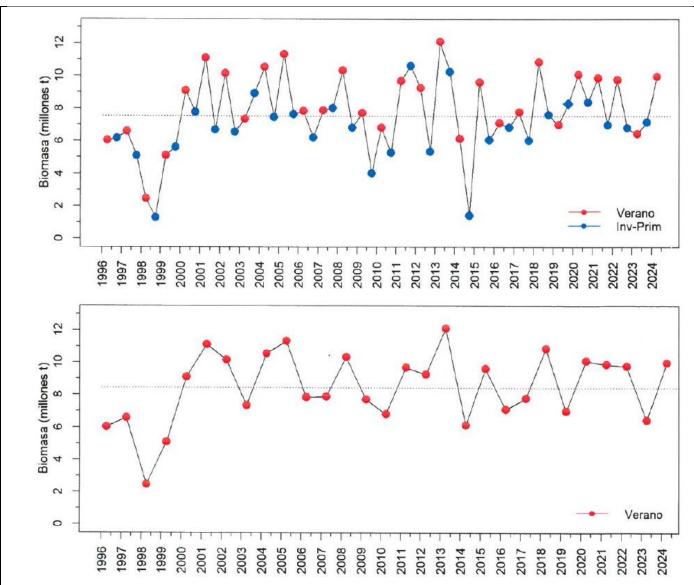


Figure 5. Acoustic biomass of anchovy observed in the evaluation cruise from 1996 to 2024 (series of all cruises in the upper part and only summer cruises in the bottom part). The red dots refers to value sin summer and the blue ones, in winter (IMARPE, 2024).

Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. A.3.2 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 Rate of Exploitation is set to ensure a low risk of the stock biomass falling below the target reference point, and fishing activity is suspended or cease totally in certain areas when some tolerable limits (juveniles catches, for example) are exceeded. Moreover, the accumulated landings and the associated LMTCP during each fishing season, are also constantly available online, almost in "real-time".

There has been no biomass estimate which was lower than the 4,000,000 tons limit reference point from 1998 until the second fishing season in 2014 and in 2015. In 2014, the biomass was below this limit and the fishing season was not open. In 2015, the government decided to provide a "social quota" of 1,000,000 tons.



Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy. A3.3 is met.

References

IMARPE. 2024. Situación del stock norte-centro de la anchoveta peruana (*Engraulis ringens*) al 01 de abril de 2024 y perspectivas de explotación para la primera temporada de pesca del ano. https://cdn.www.gob.pe/uploads/document/file/6182656/5452946-situacion-del-stock-norte-centro-de-la-anchoveta-peruana-engraulis-ringens.pdf?v=1712877361

Scott., Ian. 2020. Working Group Fishery Improvement Project Peru Anchovy Industrial Purse Seine (FIP- Anchovy) Component 1.2. Final. https://cedepesca.net/wp-content/uploads/2021/01/200819-FINAL-PERU-C1.2.pdf

Standard clause 1.3.2.1.3

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

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

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

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

In April 2024, the estimated biomass was 9,978,705 tons (IMARPE, 2024), being well above the target reference point for the spawning biomass of 5,000,000 tons and the limit reference point for the spawning biomass of 4,000,000 tons, as well in previous years in history.

The stock is above the target reference point. A.4.1 is met.

References

IMARPE. 2024. Situación del stock norte-centro de la anchoveta peruana (*Engraulis ringens*) al 01 de abril de 2024 y perspectivas de explotación para la primera temporada de pesca del ano. https://cdn.www.gob.pe/uploads/document/file/6182656/5452946-situacion-del-stock-norte-centro-de-la-anchoveta-peruana-engraulis-ringens.pdf?v=1712877361

Links

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



Spe	Species Name Chub mackerel (Scomber japonicus) [caballa]							
C1	Category C Stock Status - Minimum Requirements							
CI	C1.1	Fishery remo	ovals of the species in the fishery under assessment are included in the stock assessment	Pass				
		process, OR	are considered by scientific authorities to be negligible.					
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.								
		I	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.

Annual landings of chub mackerel are recorded (Figure 6). There is a stablished mortality reference level and an annual catch limit. The annual catch limit in 2023 for fleets of large scale was 26,558 t (R.M. N° 103-2023-PRODUCE) and 3,000 were added for updating biological-fishing information in July (R.M. N° 40- 2023-PRODUCE). The landings of chub Mackerel in 2023 were 58,654 t, from which 25,844 was attributed to the industrial fleet (IMARPE, 2023¹). The Joint Jack Mackerel (JJM) is used for providing catches advice and population assessment, which included data of CPUE (2003-2023), catches (1960-2023), among other variables.

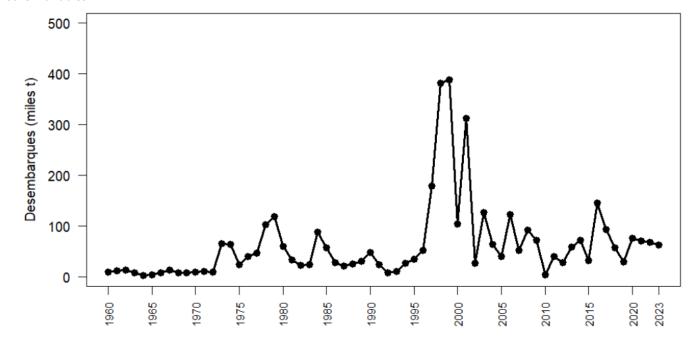


Figure 6. Annual landings of chub mackerel in Peru from 1960 to November 2023 (IMARPE, 2023¹).

Fishery removals of the species in the fishery under assessment are included in the stock assessment process. C.1.1 is met.

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

There has been a progressive increase in total biomass and spawning biomass from 2011 to 2020, with a slight decrease afterwards (Figure 7). In 2024 total biomass reduced 22% and the spawning biomass 20% in relation to 2022, but the spawning biomass remains above MSY and fishing mortality is below the MSY [IMARPE¹, 2023].



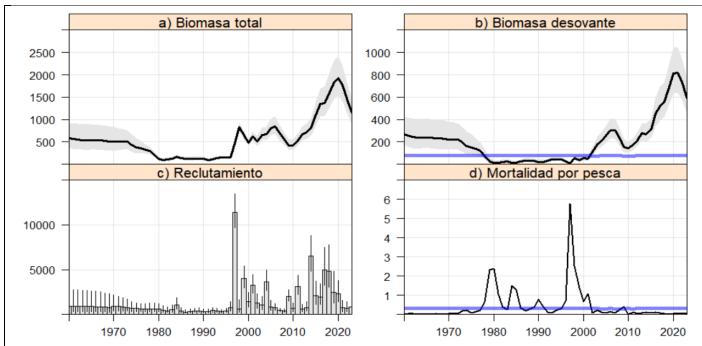


Figure 7. Estimated population indicators for chum mackerel present in Peruvian waters: a) Total annual biomass (thousand t); b) Annual spawning biomass (thousand t); c) Annual recruitment (millions of individuals), and d) Annual Fishing Mortality Rate. The horizontal lines in purple/blue express the target reference levels (B_{MSY} and F_{MSY}) [IMARPE¹, 2023].

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy). C.1.2 is met.

References

IMARPE¹. 2023. Informe sobre el desarrollo de la pesquería de caballa *Scomber japonicus* durante 2023, situación actual y perspectivas de explotación para el 2024. https://cdn.www.gob.pe/uploads/document/file/5630613/4988054-informe-sobre-el-desarrollo-de-la-pesqueria-de-caballa.pdf?v=1704298253

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



FURTHER IMPACTS

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

E1	Impacts on ETP Species - Minimum Requirements							
1	F1.1	Interactions with ETP species are recorded.	Pass					
	F1.2 There is no substantial evidence that the fishery has a significant negative effect on ETP species.							
	F1.3 If the fishery is known to interact with ETP species, measures are in place to minimise mortality. Pass							
		Clause outcome:	Pass					

F1.1 Interactions with ETP species are recorded.

In Peru, there are some onboard observer programs that report incidental catches in the pelagic fisheries.

One is a public program conducted by the IMARPE's national observer program ("Programa Bitácoras de Pesca — PBP"). IMARPE has been operating PBP since 1996 and the information obtained with the program allows to characterize the dynamics of the fleet, quantify discards, characterize bycatch, describe the behaviour of the resources, their distribution and demographic structure, and quantify the interaction with superior predators, among others (Joo et al., 2016). According to FisheryProgress (2022), the PBP monitors 4-5% of the trips.

Another program is a private one named SALVAMARES, which was created in 2017 because of the FIP in place for anchovy fishery in northern-central region of Peru. SALVAMARES consists in a system of training crew on-board to collect data on Endangered, Threatened, Protected - ETP interactions (CeDePesca, 2023). According to FisheryProgress (2022), SALVAMARES program monitors around 10% of trips and recently it has increased considerably (≥60%), but no report is available. In October 2017, SNP and IMARPE signed a specific agreement to collaborate on activities related to this FIP, including workshops on the impacts of the fishery on top predators, bycatch species and ETP species.

According to FisheryProgress (2022) there is also a private onboard observer program that covers about 8.33% portion of the fleet and reported a total of total of 70,670 birds and 7,600 mammals interactions in the second 2022 fishery season (Report, 2022).

SNP developed a visualization system of fishing activities and marine fauna, in addition to various variables that are continually measured in the marine ecosystem for contribute to understanding the functioning of the Peruvian marine ecosystem through the "Information System of Salvamares Program – Fishing Atlas" [Sistema de información del Programa Salvamares – SNP (Atlas Pesquero) –SIPS], as part of a commitment of SNP with the United Nations (UN) with the Sustainable Development Goal N° . 14 Conserve and sustainably use the oceans, seas and marine resources. With the Fishing Atlas is possible to make a quick consultation system for the activities of the industrial anchovy fishing fleet (2015 – 2023) and horse mackerel and mackerel (2011 – 2023), including the presence of the main groups of marine predators such as birds, cetaceans, sea lions and turtles that interacted with anchovy from the period 2017 -2022 (SDGS, 2024).

CeDePesca is managing the signing of an Interinstitutional Cooperation Agreement with the Faculty of Fisheries of the José Faustino Sanchez Carrión University of Huacho, with the aim of creating a space of common collaboration to promote, among other topics, the publication of the main results of the research that is developed with the data collected by the Salvamares Program and the Private Program of Observers on Board (POAB) [FisheryProgress, 2024].

Interactions with ETP species are recorded. F.1.1 is met.

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

IMARPE² (2023) has reported an increase of interaction of anchovy fishery with birds in 2023, such as Guanay cormorant - Leucocarbo bougainvilliorum (guanay), Peruvian booby - Sula variegate (piquero Peruviano), Peruvian pelican - Pelecanus thagus (pelicano), Inca tern - Larosterna inca (zarcillo) and sooty shearwater - Ardenna grisea (pardela gris), which were found dead or dying on the hoopers. All these species are listed as "near threatened" by Union for Conservation of Nature's Red List of Threatened Species - IUCN's Red List (BirdLife International^{4,5,2}, 2018 and 2019), apart from Peruvian booby, which has a "least concern" status (BirdLife International⁶, 2018). However, IMARPE² (2023) believed they might be stressed by the H5N1 bird flu, whose first outbreak was registered in November 2022 and by the coastal 2023-2024 El Niño event, which led to a



decrease on the availability of anchovy this year, the food source of the birds. As the birds are weak, they try to catch anchovy from the fishing gears and end up enrolled on the nets.

According to the latest data of the Fishing Atlas, in the second 2022 anchovy fishing season, from November 22nd to February 05th 2023, 1,144 birds, 1,103 sea lions and 82 cetaceans were released and no turtles' interactions were reported (Fishing Atlas, 2023) by the 15 fleets associated to SNP.

The private onboard observer program reported a total of total of 70,670 birds and 7,600 mammals interactions in the second 2022 fishery season, with 99.52% of indirect interaction, 0.48% of direct interaction and 0.14% of mortality for birds and 0.17% for mammals (Figure 8) [Report, 2022]. Up to 25 birds species were reported. The species with some deadly interactions were the least concern Peruvian booby, the near threatened Peruvian pelican, the low concern blue-footed booby - *Sula nebouxii* (piquero de patas azules) [BirdLife International, 2021], the low concern Franklin's gull - *Larus pipixcan* (gaviota de Franklin) [BirdLife International³, 2018], the vulnerable pink-footed shearwater - *Ardenna creatopus* (pardela de patas rosadas) [BirdLife International¹, 2018], the near threatened guanay cormorant and the seabird most commonly released was the near threatened sooty shearwater. All the reported mammals have a "low concern" status by IUCN: South American Sea Lion - *Otaria byronia* (lobo marino sudamericano) [Cárdenas-Alayza et al., 2016], Dusky dolphin - *Lagenorhynchus obscurus* (delfín obscuro) [Alafaro-Shiguieto et al., 2019], common dolphins - *Delphinus delphis* (delfín común) [Braulik et al., 2021] and South American fur seals - *Arctocephalus australis* (lobo fino austral) [Cárdenas-Alayza et al., 2016].

	Interacción Indirecta			Interacción Directa				Post-Captura					
		(No sufrieron daños)			(Sufrieron daños)				(Sufrieron daños)				
					Antes Durante								
ESPECIE	Se encontraban presentes durante toda la faena, pero no sufrieron ningún daño.			Mientras se extiende el cerco	Cuando se inicia el cierre del cerco y se procede a llevar la red a bordo		Cuando la red se encuentra a bordo y empieza a envasar la captura hasta que se termina la faena	Estado en el que quedaron los individuos después de sufrir daños				Total Individuos	Frecuencia de Ocurrencia
	I-N/S	I-P/E	I-A/E	D-A1	D-D1	D-D2	D-Ds1	P-C1	P-C2	P-C3	P-C5		
Albatros de las Galápagos - Phoebastria irrorata	1,401		820		-	1		1				2,222	32.85%
Cormorán guanay/Guanay - Phalocrocorax bougainvilii	650		85		3			3				738	13.50%
Fragata magnifca - Fregata magnificens	68	49	54	l								171	5.47%
Gaviota de Sabine- Xema sabini	116											116	1.46%
Gaviota de frankiln - Leucophaeus pipixcan	16,143		6,893		8			8				23,044	47.81%
Gaviota dominicana - Larus dominicanus	287	10	260									557	17.15%
Gaviota indet.	22		10									32	0.36%
Gaviota indet. Larus sp.	29											29	2.19%
Gaviota peruana - Larus belcheri	1365	14	482									1,861	16.42%
Gaviotín común - Sterna hirundo	1		5								-	6	0.73%
Gaviotín elegante - Sterna elgans	1											1	0.36%
Gaviotín peruano - Sternula Iorata	2162	5	1770									3,937	6.20%
Golondrina de mar acorallada -Oceanodroma hornbyi	46											46	1.46%
Golondrinas de mar - Hydrobates sp.			14				1			1		15	2.19%
Págalo pomarino - Stercorarius pomarinus	169		20									189	5.47%
Pardela común /gris - Puffinus griseus	1371		189									1,560	25.55%
Pardela de pata rosada - Puffinus creatopus	3		3									6	0.73%
Pardela indet.	13											13	1.46%
Pelicano peruano - Pelecanus thagus	1984		942	1	2			1			2	2,929	34.31%
Petrel de mentón blanco - Procellaria aequinoctialis	1											1	0.36%
Petrel indet.	3											3	0.73%
Piquero de pata azul - Sula nebouxii	5996		3414		172	1	2	74		21	80	9,585	10.95%
Piquero peruano - Sula variegata	1659	15	613	3	7		2	10	2			2,299	22.99%
Potoyunco - Pelecanoides garnotii	536		2									538	4.74%
Zarcillo - Larosterna inca	13844	35	6893									20,772	33.94%
Total de individuos	47,870	128	22,469	4	192	2	5	97	2	22	82	70,670	
Delfín - Delfín indet.	82						6		6			88	2.19%
Delfín común - Delphinus capensis	354		43		4				4			401	4.74%
Delfín nariz de botella - Tursiops truncatus	14		25									39	0.73%
Delfin oscuro - Lagenorhynchus obscurus	70				11			1		10		81	1.46%
Lobo chusco - Otaria byronia	853		5962		123	7	20	12	76		62	6965	79.93%
Lobo indeterminado			26									26	1.09%

Figure 8. Example of interactions with birds during private onboard observer program in 2022 (Report, 2022).

In general terms, PBP, SALVAMARES the private onboard observer programmes report many interactions of anchovy fishery with ETP species, but the mortality rates are low (SFP, 2021; CeDePesca, 2019, Report, 2022).

There is no substantial evidence that the fishery has a significant negative effect on ETP species. F.1.2 is met.

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

SALVAMARES provides training of crew on-board to collect data on ETP interactions. Several manuals have been created and recently updated with identification guides and instructions to release ETP species, instructions for data treatment of biological, acoustic and satellite data collected during the cruises and for organizing workshops and congresses (SNP, 2024).



There are several measures in place in the country to minimise the impacts on ETPs species, especially due the FIP that has been developed in Peru. Some of the measures are summarized by FishChoice (2019):

"The national protection and management of ETP species involves marine protected areas around islands and guaneras areas, as well as prohibition on hunting sea lions, and a prohibition on the possession, trade, transport or export of ETP species. Various government departments monitor the population status of ETP species.

In Peru, multiple different government departments have responsibility for different aspects of ETP management. MINAGRI, the Ministry for Agriculture prohibits the catch and transport of ETP species, SERNANP is the department responsible for protected areas, and SERFOR manages forests and fauna outside of protected areas. Hunting sea lions is prohibited, birds associated with the production of guano are protected. There is a system of MPAs prohibiting fishing around guaneras islands and points.

IMARPE promotes the adoption of Dolphin Safe practices and certification of fisheries. Some of the companies in the FIP use pingers on their nets to deter dolphins. It is not clear whether all the companies do this. It is not a policy of the fishery management or the FIP. However, if one company seems the value in pingers, it can be assumed it reduces dolphin interactions. Independently owned vessels that are not part of the companies within this FIP, do not use pingers on their nets. SERFOR and the Peruvian government has recently published a National Plan for the Conservation of Marine Turtles, approved in December 2019.

IMARPE has a department called Research Unit on Top Predators. One of their objectives is to develop indicators of changes in the marine environment. They conduct activities such as the estimation of population abundance, the study of the ecology of food and the study of reproductive parameters of guaneras birds (Peruvian pelican, Peruvian booby, Guanay cormorant, etc), the evaluation of the population abundance of sea lions on the Peruvian coast and monitoring of sea turtles. They conduct research cruises to study the distribution and abundance of birds and cetaceans.

There are overarching national measures designed to protect ETP species. The IHC fishery is not allowed to fish within 5 nm of the coast. This area is allowed to be fished by the DHC fishery. This measure protects many of the islands that are habitat to ETP species, from the disturbance of industrial fishing.

The FIP has implemented a private on-board observer program with the following aims:

- Characterize and estimate the bycatch of the fishery.
- Identify and quantify the species of birds and marine mammals that interact with the fishery.
- Collect information to identify the habitats on which it would be impacting the fishery.
- Provide advice on board to the crew members who are part of the Program "SALVAMARES".

The FIP has also implemented a program called 'SALVAMARES', which is a system of training crew on-board to act similar to observers, and collect data on ETP interactions. They are also trained in release techniques. The SALVAMARES cover 10% of the fleet. The information can be validated by the observer program which also covers this fleet, and comparisons of the data have been carried out, in order to improve the data collection.

There is a kit which has been developed and recommended for use, which includes safe liberation of turtles, dolphins and sharks. For there to be a commitment to implement the kit, it must be approved by the SNP scientific committee first. If the kit is issued to vessels, there should also be a summary of the release training and release kit work that has been occurring, to understand whether this has been applied to all FIP vessels yet.

The spatial overlap of the fishery with bird and mammal nesting areas is low because, with the exception of one island, all other islands are within the 5m inshore zone and therefore the IHC vessels are not allowed to fish there. There is a medium level of temporal overlap between the fishing seasons and the reproductive seasons of the critical TP species (pelicans and fur seals)."

Measures are in place to minimise mortality. F.1.3 is met.

References



Alafaro-Shiguieto, J., Crespo, E., Elwen, S., Lundquist, D. & Mangel, J. 2019. *Lagenorhynchus obscurus* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T11146A175604493. https://www.iucnredlist.org/species/11146/175604493

BirdLife International¹. 2018. *Ardenna creatopus*. The IUCN Red List of Threatened Species 2018: e.T22698195A132633266. https://www.iucnredlist.org/species/22698195/132633266

BirdLife International². 2018. *Larosterna inca*. The IUCN Red List of Threatened Species 2018: e.T22694834A132576903. https://www.iucnredlist.org/species/22694834/132576903

BirdLife International³. 2018. *Larus pipixcan*. The IUCN Red List of Threatened Species 2018: e.T22694462A132553472. https://www.iucnredlist.org/species/22694462/132553472

BirdLife International⁴. 2018. *Leucocarbo bougainvilliorum*. The IUCN Red List of Threatened Species 2018: e.T22696810A133553624 https://www.iucnredlist.org/species/22696810/133553624

BirdLife International⁵. 2018. *Pelecanus thagus*. The IUCN Red List of Threatened Species 2018: e.T22697619A132596827. https://www.iucnredlist.org/species/22697619/132596827

BirdLife International⁶. 2018. *Sula variegata*. The IUCN Red List of Threatened Species 2018: e.T22696686A132589026. https://www.iucnredlist.org/species/22696686/132589026

BirdLife International. 2019. *Ardenna grisea*. The IUCN Red List of Threatened Species 2019: e.T22698209A154440143. https://www.iucnredlist.org/species/22698209/154440143

BirdLife International. 2021. *Sula nebouxii*. The IUCN Red List of Threatened Species 2021: e.T22696683A168988087 https://www.iucnredlist.org/species/22696683/168988087

Braulik, G., Jefferson, T.A. & Bearzi, G. 2021. *Delphinus delphis* (amended version of 2021 assessment). The IUCN Red List of Threatened Species 2021: e.T134817215A199893039. https://www.iucnredlist.org/species/134817215/199893039.

Cárdenas-Alayza, S., Crespo, E. & Oliveira, L. 2016. *Otaria byronia*. The IUCN Red List of Threatened Species 2016: e.T41665A61948292. https://www.iucnredlist.org/species/41665/61948292

Cárdenas-Alayza, S., Oliveira, L. & Crespo, E. 2016. *Arctocephalus australis*. The IUCN Red List of Threatened Species 2016: e.T2055A45223529. https://www.iucnredlist.org/species/2055/45223529

CeDePesca. 2019. INFORME N° 3 Programa "SALVAMARES" del proyecto de mejora de la pesquería de anchovy Peruviana chi. Temporada de pesca 2019-I. https://cedepesca.net/wp-content/uploads/2020/01/2019-10-16 Report-of-the-Private-Observer-Program-on-board.pdf

CeDePesca. 2023. Peruvian Anchovy (Indirect Human Consumption). https://cedepesca.net/proyectos/peruvian-anchovy-indirect-human-consumption/

Fishing Atlas. 2023. Pesquería Anchoveta. Programa Salvamar. https://snp.org.pe/investigacion-cientifica/atlas-pesquero/

FishChoice. 2019. Three-Year Audit Template. https://fisheryprogress.org/sites/default/files/indicators-documents/Peruvian Anchovy IHC FIP Review 2019 GB2338 5.pdf#overlay-context=node/3546/actions-progress

FisheryProgress. 2022. Peru anchovy - industrial purse-seine. Three-Year Evaluation Report. Version 1.3, November 2022. https://fisheryprogress.org/sites/default/files/indicators-

documents/Anchoveta%20CHI FisheryProgress Three Year Evaluation Template dic 23 1.pdf#overlay-context=node/3546/improvement

FisheryProgress. 2024. Action 5. Determining the impacts of the industrial fleet on ETP species and other ecosystem components and mitigate them, if necessary. https://fisheryprogress.org/node/3546/actions-progress#overlay=action/3631



IMARPE². 2023. Informe de la pesca exploratoria de la anchovy en la región norte-centro (del 03 al 07 de junio del 2023). https://www.gob.pe/institucion/imarpe/informes-publicaciones/4317845-informe-de-la-pesca-exploratoria-de-la-anchovy-en-la-region-norte-centro

Joo, R., Grados, D., Bouchon, M. y Diaz, E. 2016. Optimum sample size for a program of observers on board fishing vessels targetting Peruvian anchovy (*Engraulis ringens*). Revista Peruviana de Biología, 23(2), 169 – 182. http://www.scielo.org.pe/scielo.php?script=sci arttext&pid=S1727-99332016000200009

Report. 2022. Programa privado de observadores. Pesquería de anchoveta peruana para Consumo Humano Indirecto – CHI Stock Centro- Norte - Temporada 2022 – II.

SDGS. 2024. Sistema de información del Programa Salvamares – SNP para visualización del ecosistema marino peruano -SIPS. https://sdgs.un.org/es/partnership-progress/sistema-de-informacion-del-programa-salvamares-snp-para-visualizacion-del

SFP. 2021. Anchovy Peruvian Northern-Central. FishSource profile. https://www.fishsource.org/fishery_page/5524

SNP. 2024. Programa Salvamares. https://snp.org.pe/investigacion-cientifica/programa-salvamares/

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

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

There have been no changes from last year, so the information remains the same.

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

On 12 April 2023, Peru's National Congress approved some amendments to the LGP Law Nº 25977), with important implications for fisheries management and conservation within the five nautical miles along its coasts, which is an important zone for the reproduction and breeding of multiple coastal species. Since the early 1990s, this has been an area where the fishing activities of industrial fleets have been restricted. The amendments to the law recognize the first five nautical miles adjacent to the Peruvian coast as a protection zone and establish the following measures (OCEANA, 2023):

- Prohibit large-scale fishing within the 5 nautical miles area, without exceptions;
- Prohibit mechanized purse-seiners of any size in the first 3 nautical miles;
- Require the fishing authority to approve a list of the fishing gear that will be allowed in the area, which must exclude any gear that is harmful to the habitat.

The Supreme Decree 012-2001-PE specifically forbids the utilization of the "antifango", an unlawful apparatus positioned at the base of fishing nets. This device, when used in shallower waters, disrupts the seabed, causing detrimental effects on the habitat (MBA, 2023).

Peru's marine protected areas encompass an extent of 639,282 hectares, constituting 3.9% of the nation's marine expanse. These designated areas encompass the "Paracas National Reserve", the "Guano Islands and Capes National Reserve" and the "San Fernando National Reserve". As of now, no Vulnerable Marine Ecosystems (VMEs) have been charted within Peruvian waters

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.

The consequences of fishing activities on habitats are linked to physical disruptions that occur when bottom gear comes into contact with the seafloor (ICES 2006). According to the provided definition, fishing gear utilized in pelagic fishing, like purse seines, do not have a direct impact on the seabed. Therefore, it is believed that these gear types do not exert any influence on the habitat (ICES 2006) (Grieve et al, 2014).

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 and there was low negative interaction with biogenic structures or benthic species that could be damaged by the net (SALVAMARES 2019).

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

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.

As indicated above, measures are in place to protect the first nautical miles along its coasts.

From October 2018 the Government made available VMS data from the fleets to the Global Fishing Watch (GFW) application. Vessels from both industrial fleets are included. Mandatory VMS are in place, as required by PRODUCE Decrees №10/2010, №5/2012 and №01/2013. The electronic/radio log is required as well for the fishery (PRODUCE 2016).

Any violation of entry into Marine Protected Areas and Vulnerable Marine Ecosystems for fishing operations are prosecuted. Results of these prosecutions are published on the PRODUCE website.

Although the interaction of the fishery with physical habitats be low, there are measures in place to minimise and mitigate negative impacts. F.2.3 is met.

References

Grieve, C., Brady, D.C. & Polet, H. 2014. Best practices for managing, measuring and mitigating the benthic impacts of fishing – Part 1. Marine Stewardship Council Science Series 2: 18 – 88. https://repository.oceanbestpractices.org/bitstream/handle/11329/614/Grieve%20et%20al%202015.pdf?sequence=2

ICES. 2006. Report of the Working Group on Ecosystem Effects of Fishing Activities (WGECO), 5 12 April 2006, ICES Headquarters, Copenhagen. ACE:05. 174 pp. https://www.ices.dk/sites/pub/CM%20Doccuments/2006/ACE/WGECO06.pdf

MBA. 2023. Draft Assessment for Review Anchovy, Peruvian (Chile, Peru) *Engraulis ringens*. Monterrey Bay Aquarium. Seafood Watch. https://www.seafoodwatch.org/globalassets/sfw/pdf/expert-review/2022/100322/seafood-watch-peruvian-anchovy-chile-peru-27723.pdf

OCEANA. 2023. Peru passes important ocean protection law to protect the first five nautical miles at sea. https://oceana.org/press-releases/peru-passes-important-ocean-protection-law-to-protect-the-first-five-nautical-miles-at-sea/

PRODUCE. 2016. Decreto Supremo N° 024-2016. Establece medidas para fortalecer el control y vigilancia de la actividad extractiva para la conservación y aprovechamiento sostenible del recurso anchovy. Lima, 15 de noviembre de 2016. http://busquedas.elPeruviano.com.pe/download/url/decreto-supremo-que-establece-medidas-para-fortalecer-el-con-decreto-supremo-n-024-2016-produce-1453690-4

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

Links				
MarinTrust Standard clause	1.3.3.2			
FAO CCRF	6.8			
GSSI	D.2.07, D.6.07, D3.09			



F3	Ecosystem Impacts - Minimum Requirements			
13	F3.1 The broader ecosystem within which the fishery occurs is considered during the management			
		decision-making process.		
	F3.2	There is no substantial evidence that the fishery has a significant negative impact on the marine	Pass	
		ecosystem.		
	F3.3	If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals.	Pass	
	•	Clause outcome:	Pass	

There have been no changes from last year, so the information remains the same.

F3.1 The broader ecosystem within which the fishery occurs is considered during the management decision-making process. Anchovy 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 anchovy, sardines and other low trophic level (LTL) species from north to south in the Humboldt current large marine ecosystem - HCLME have been also described (Cubillos et al. 2007).

Data on environmental factors (water temperature, phytoplankton and zooplankton, etc) is collected by IMARPE during the hydrographic surveys and are taking into consideration during the assessment of the anchovy stocks. IMARPE also monitors all levels of the ecosystem, from algae up to marine macro-fauna, top predators, marine mammals and birds. According to FishChoice (2019), IMARPE is compiling all datasets into one ecosystem model to evaluate the impact of different fishing pressures.

Due to the low trophic level of the species, anchovy is also a key resource for some marine species in the HCLME, such as ETP species which rely on it. Although anchovy is prey of several species, studies indicated that these species' dietary necessities have been adequately met in recent years and anchovy fishery is not exerting an adverse influence on species recovery (Tam et al., 2020).

IMARPE has highlighted the difficulties of predicting environmental variability due to el Niño event and other events and note that focus should be on preservation of the resilience of key species in the ecosystem, such as anchovy. In the report "Ficha de impacto de la pesquería de Anchovy sobre especies de by-catch y protegidas" estimation of consumption of each species have been analysed to guaranty the LMTCP set by the authorities at the beginning of each fishing season considers the needs of the entire ecosystem.

The anchovy 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 and access to the fishery, restriction of bycatches amount, restrictions on juveniles catches, updates on LMTCP according to fishing and environmental biological factors though the year (CDN, 2022), etc; which 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 anchovy) 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.

FishChoice (2019) mentioned a publication titled "Impact Study of Anchovy Fishery on By-Catch and Protected Species" (referred to as "Fichas del Impacto"), which elucidated relationships between various species populations, the anchovy population, and the availability of food during specific reproductive periods. The analysis concluded that these species' dietary necessities have been adequately met in recent years, indicating that the anchovy fishery isn't exerting an adverse influence on species recovery.

IMARPE has attempted to quantify the needs of the HLCME ecosystem and the species which rely on anchovy (IMARPE, 2020). The ecosystem study has shown that the predators with more than 50 % of anchovy in their diets were Peruvian boobies,



Guanay cormorants, pelicans, Eastern Pacific bonito, other large pelagic, sea lions, catfishes and fur seals. Predators with more than 2 tons per $\rm km^2$ per year of anchovy consumption were Eastern Pacific bonito, medium demersal, horse mackerels, other large pelagic and pacific mackerels. The conclusions of this study 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 ($\rm F=0.784$) 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%.

Moreover, the fishery has no impact on the habitat and a relatively low impact on ETP species. LMTCPs are set by the authorities taking into consideration the predator species which rely on the resource.

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.

Various safeguards have been implemented to preserve distinct tiers of the ecosystem.

Anchovy populations are highly monitored and regulated as well. Within the fishery-specific management system, robust protocols are established to determine the LMTCP, assuring that the stock remains within sustainable biological thresholds. The LMTCP is renewed annually and follows a two-stage release approach, subject to review prior to the second fishing season. For the subsequent fishing season, the LMTCP is determined using IMARPE's stock assessment outcomes. This is done according to a formula outlined in a decision table by IMARPE. The decision table computes the risk of the remaining spawning biomass falling below the biological limit reference point. This assessment considers data from acoustic surveys during closed seasons and landing data, ensuring the LMTCP adapts to the stock's current state.

The ongoing monitoring of juvenile and bycatch percentages occurs in real-time. To address bycatch, regulations stipulate that the catch's bycatch portion must not exceed 5%. Under PRODUCE's jurisdiction, the authority to close the IHC fishery during seasons with high juvenile proportions exists. The specific percentage of juveniles warranting a fishery closure is assessed seasonally. Monitoring the juvenile percentage relies on real-time catch reporting and observer input, while electronic logbooks submitted to PRODUCE record this data for each haul. Although landing over 10% juveniles is forbidden, exceptions are possible if reported immediately for area-specific temporary closures. Such information is included in electronic logbooks submitted to PRODUCE. Temporary closures can be enforced within hours or a few days based on the reported percentage exceeding 10% (FishChoice, 2019).

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. F.3.3 is met.

References

Avadí, Á., Vázquez-Rowe, I. & Fréon. F. 2014. Eco-efficiency assessment of the Peruvian Anchovy 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

CDN. 2022. Resolución Ministerial N° 464-2022-PRODUCE. https://cdn.www.gob.pe/uploads/document/file/4013158/RM%20N%C2%BA%20464-2022-PRODUCE.pdf. PRODUCE.pdf.pdf?v=1672537099

Cubillos, L., Serra, R., Freon, P., 2007. Synchronous patterns of fluctuation in three anchovy fisheries in the Humboldt Current system. Aquatic Living Resources 20, 69 – 75. Available at: https://www.alr-journal.org/articles/alr/pdf/2007/01/alr008-07.pdf

FishChoice. 2019. Three-Year Audit Template. https://fisheryprogress.org/sites/default/files/indicators-documents/Peruvian Anchovy IHC FIP Review 2019 GB2338 5.pdf#overlay-context=node/3546/actions-progress

IMARPE. 2020. Ecosystem impacts of fishing the low trophic level Peruvian anchovy in the Northern Humboldt Current Ecosystem. https://cedepesca.net/wp-content/uploads/2021/01/Tam-Ecosystem-impacts-2020.pdf



Tam, J., M. Taylo, M. Ñiquen. 2020. Ecosystem impacts of fishing the low trophic level Peruvian anchovy in the Northern Humboldt Current Ecosystem. Instituto del Mar del Perú, Callao, 12 pp.		
Links		
MarinTrust Standard clause	1.3.3.3	
FAO CCRF	7.2.2 (d)	
GSSI	D.2.09, D3.10, D.6.09	

SOCIAL CRITERION

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



Appendix A - Determining Resilience Ratings

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

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

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

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



Appendix B - MarinTrust Fishery Assessment Peer Review Template

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

Fishery under assessment	Anchovy (Engraulis ringens) of the Northern-Central Peru stock	
Management authority (Country/State)	Ministry of Production (PRODUCE)	
Main species	Anchovy (Engraulis ringens)	
Fishery location	FAO 87, northern border of Peruvian EEZ to 16° South	
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.

Although I agree all the scores, I think they are necessary precisions to make to the assessment. The more important of them is the fact that the industrial fishery of anchovy is managed according to Legal Decree issued in 2008 (DL-1084), not the General Fisheries Law (LGP Law Nº 25977). The DL-1084 consists in the assignation of fishing quotas by vessels, and is considered a successful management system after 16 years of its implementation.

For the section 'Assessment Determination' I would like to make the following comments:

It is now proven that anchovy is able to distribute in the Gulf of Guayaquil, in Ecuadorian waters, although there is no fishery targeting this specie there. This was published by the Public Institute of Aquaculture and Fishing (IPIAP, 2023).

It is mentioned that only industrial landings are used in the production of fishmeal and fish oil. That is not correct both the small-scale fishing vessels and artisan boats are allowed to destinate 40% of their catches to this use. Also, viscera produced in these two segments are used in producing fishmeal and fish oil.

In this industrial fishery it is allowed 5% in volume of other species to be used for fishmeal and fish oil. Chub mackerel has its own regulation (the same as for Jack mackerel), it is forbidden to use those fish in producing fishmeal and fish oil since 2001, but it is possible that, as in this case, chub mackerel can be distributed in the same areas with anchovy.

It is important to highlight that DL-1084 is applicable not only to anchovy but to *Anchoa nasus* as well (white anchovy or longnose anchovy). This is due to the fact that during El Niño events it is common that A. nasus can be distributed in Peruvian waters sharing areas with anchovy. Under normal conditions A. nasus is distributed almost exclusively in Ecuador.



It is stated that the quota for the first fishing season was 1,682,000 tons, that is wrong the assigned quota was 2.45 MT, 98% of it was caught.

It is stated that "Although anchovy is prey of several species, studies indicated that these species' dietary necessities have been adequately met in recent years and anchovy fishery is not exerting an adverse influence on species recovery". This is very important statement but there is no reference to it in this section. The reference is the next (a different reference is however cited in the last paragraph of the document):

Tam, J., M. Taylo, M. Ñiquen.(2020). Ecosystem impacts of fishing the low trophic level Peruvian anchovy in the Northern Humboldt Current Ecosystem. Instituto del Mar del Perú, Callao, 12 pp.

In the text of the 'species categorization table' it is stated that: "It is hard to compile landings data as Peru publishes daily reports of the landings and rarely publish a report with compiled quantitative data of the accompanying fauna". That is not correct, the National Fisheries Society (SNP) in cooperation with the Humboldt Institute performs two annual workshops on anchovy and one workshop for chub/jack mackerel, all the data about other species is made available voluntarily for the same. In a next review, it the assessor need this kind of information can get in contact with SNP or with IMARPE. Also he/she can consult here where detailed data is available: https://ihma.org.pe/data-de-calas-y-biometria-por-anos-y-temporadas/

Finally, there is a gross mistake in the next sentence: "IMARPE (2023) reported that the total catch of the 190 observed trips and 720 fishing hauls of the industrial anchovy fleet operating in northern Chile during the second 2023 fishing season was 30,973 tons". The Peruvian fleet cannot operate in Chilean waters.

Another mistake is this: "IMARPE (2024) reported that anchovy composed 99.94% of the total catch of the 118 observed trips and 414 fishing hauls of the industrial anchovy fleet operating in Northern Chile during April 2024, while 0.04% of the catches were composed by carrot/red squat lobster". The Peruvian fleet cannot operate in Chilean waters.

General Comments on the Draft Report provided to the peer reviewer

The external peer-reviewer has written his comments on the sections allocated for the CAB response; thus the assessor reorganized this report.

It was mentioned in the assessment that The Peruvian fishing sector is governed by the General Fisheries Law (LGP Law Nº 25,977), which is also applied to the Peruvian anchovy fishery, although the Legal Decree issued in 2008 (DL-1084) is more specific for the fishery in assessment. This Decree was added to complement the information about the management of the fishery.

Assessment Determination

Thank you for clarifications about the landings used in the production of fishmeal and fish oil. The sentence "Only Industrial landings are used to produce fishmeal in Peru" was removed from the assessment.

You are right, 1,682,000 tons was the assigned quota for the 2023 second fishing season, not for the 2024 first fishing season. This mistake was corrected in the assessment.

I have added now Tam et al (2020) reference to F.3.1.

Species categorization table

In the link provided https://ihma.org.pe/data-de-calas-y-biometria-por-anos-y-temporadas/, there are no data of the accompanying fauna of the fishery, only catches of anchovy. In the same website, it was found a link with data of accompanying fauna: https://drive.google.com/drive/folders/1Yj2xs1KpjYrHN5 6AB4LtAo9DJY734vA, however the latest data is from 2020. Thus, the original data used for the species categorisation rationale seems more updated and adequate for the case. Nevertheless, it is a good advice trying to get the accompanying fauna data from SNP and in the website there is recent data of ETP catches. The request of data to IMARPE was unsuccessful as the portal required contact details from Peru from the applicant.



The mistake on the citation of the country mentioned sentences "IMARPE (2023) reported that the total catch of the 190 observed trips and 720 fishing hauls of the industrial anchovy fleet operating in northern Chile during the second 2023 fishing season was 30,973 tons" and "IMARPE (2024) reported that anchovy composed 99.94% of the total catch of the 118 observed trips and 414 fishing hauls of the industrial anchovy fleet operating in Northern Chile during April 2024, while 0.04% of the catches were composed by carrot/red squat lobster" were corrected for the final report. These sentences actually referred to Northern Peru.

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".

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

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
Certification body response
No comments.



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

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

Yes. It is important to notice that the specie commonly found with anchovy is the small red squat lobster (*Pleuroncodes monodon*). Due to El Niño 2023 chub mackerel has been found is a small percentage, and because of that is considered C specie, but it could be B specie since *S. japonicus* is regularly assessed with acoustic methods, also indirect methods and a complete set of regulations that have not been cited here.

Certification body response

Agreed. This year the assessment considered catch composition data reported by IMARPE on the second fishery season of 2023, which started in the end of October 2023, and the beginning of the 2024 fishing season, which started in mid-April 2024 (IMARPE 2023 and 2024). As anchovy mackerel catches were 99.9% of the catches, only this species was assessed under Type 1. According to data provided for the following fishing seasons, the species categorization must be updated.

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

It is pertinent to cite that it is not the General Fisheries Law (LGP Law Nº 25977) which is used to manage this fishery. Very specifically, it is managed through the Legal Decree 1084 (DL-1084) which stablished a system of fishing quotas by vessels.

It is also stated that "Although discards are not officially documented...". However, it is not cited that in 2016 it was issued the Supreme Decree 024 which create the dynamic system of closing of areas where juvenile fish was caught over 10% of the catch considering the number of fish (not volume of catches). After a study of Gabriel Englander (World Bank, not still published) the DS-024 has demonstrated to be a solution to the problem of fish discards. Then the discarding it is considered to not to be a problem anymore.

One important aspect not mentioned in the assessment is the cooperation agreement of IMARPE and SNP. Under this agreement the fishing vessels participate in the scientific surveys to Increase the resolution of the



acoustics and biological sampling. This cooperation has no cost for Imarpe and does not mean ani grade of commitment for the institute.

In M2.3 it is mentioned that "IMARPE evaluates such data to identify critical fishing zones with a high frequency of juvenile catches". That is not a task of Imarpe but the Ministry of Production although sometimes Imarpe has recommended the closing of certain areas.

Certification body response

Although is an important regulation for the anchovy management, Legal Decree 1084 does not determine the roles of the fishery management organizations neither the sanctions framework. Therefore, General Fisheries Law (LGP Law Nº 25,977) and its amends, was the main regulation covering the clauses of M1 and M2 sections. Nevertheless, as the Legal Decree is critical for the management of the fishery, I cited it in the "assessment determination" section and in M.1.1 in the final version of the report as following: "The Peruvian fishing sector is governed by the General Fisheries Law (LGP Law Nº 25977) promulgated on December 21, 1992. The Supreme Decree No. 021-2008-PRODUCE approved the Regulations of Legislative Decree No. 1084, the Law on maximum catch limits per vessel, which contains the complementary rules to it and establishes the procedures for applying the fishing management regime applicable to the extraction intended for indirect human consumption of the anchovy and white anchovy resources (*Engraulis ringens* and *Anchoa nasus*). The highest authority is the Ministry of Production – PRODUCE (Ministerio de la Producción). Under PRODUCE, there is a Vice-ministerial Office of Fishery and Aquaculture."

I added on M1.3 information about the Supreme Decree 024/2016 that you have mentioned: "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. Moreover, the Supreme Decree 024/2016 create the dynamic system of closing of areas where juvenile fish was caught over 10% of the catch considering the number of fish, a system that contributes for a reduction of discards for this species."

I clarified in M2.3 the role of PRODUCE in the process of fishing closure, by adding the follow sentence in bold to the original phrase of the report: "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, which is responsible for establishing the closure".

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

Yes.

In A1.2 it is stated that "before each fishing season, IMARPE monitors oceanographic conditions and carries out direct biomass estimates and onboard sampling to estimate size structure and reproductive parameters". Regarding this, the current version of the protocol used for estimating the fishing quota established that if the scientific survey is performed during the development of anomalous conditions, then the results of direct biomass estimations are not to be used but the population dynamic models instead.

In A2.1 it is stated that "The stock assessment is conducted annually by IMARPE and a mid-year evaluation is performed to evaluate the status of the stock before the second fishing season". Actually there is one acoustic survey before every fishing season, plus a survey in winter for assess the spawning biomass through the collection of fish eggs.

In A2.4 is important to consider that every five years, as an average, IMARPE use to invite experts to evaluate the used methodologies, results and instruments. This year (August 2024) a mission of experts of Scotland, USA and Spain are performing an auditory to current methods used by Imarpe.

In A3.1 it is not described that the control of landings is made by private companies such as SGS and Intertek with no cost for the State.



In A3.3 it is stated that "it is not clear whether the fishery would be closed in the event that the estimate fell below the limit reference point". In the harvest control rules used by Imarpe is stated that if the adult biomass is smaller than reference limit, it cannot be authorized the fishing season. That limit is 4.0 MT, and this was the case for the second fishing season in 2014: Imarpe did not find a biomass over 4 MT, consequently, there was no fishing season. The same happened in the second fishing season in 2015, but in that opportunity the Government decided to provide a "social quota" of 1.0 MT.

Thank you for the additional information provided. I included than in all mentioned clauses.

Certification body response

3B. Are the "Category B Species" scores clearly justified?
n.a.
Certification body response
No comments.
3C. Are the "Category C Species" scores clearly justified?
Yes
165
Certification body response
No comments.
3D. Are the "Category D Species" scores clearly justified?
n.a.
Certification body response
No comments.



3F. Are the scores in "Section F - Further Impacts" clearly justified?

Yes

In F1.1. it is mentioned that the Salvamares program is producing data on interactions of the fleet with ETP species. It is convenient that that data is accessible under request to SNP.

In F1.2 is very important to notice that, at least in my case, is the first time I see so detailed information on ETP interactions with the fleet. This is a very good example of what Marin Trust could propose to clients around the world.

Certification body response

Thank you. The information of ETP interactions provided was available because of the public information of the actions of the FIP in place and because in 2023 IMARPE has included in its report. Reports of the IMARPE in following years did not provide this data. And it is nor ease to obtain data from a private onboard observer program.

Optional: General comments on the Peer Review Draft Report

There are some strange expressions in the report, by instance "IMARPE has a department called the Office of Research on Superior Predators" being a correct translation "Research Unit on Top Predators". Also "devices to aid the release of turtles", being correct to say "safe liberation of turtles".

Certification body response

Thank you, I have used your suggested expressions now on the final version of the report.



Glossary

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

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