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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Anchoveta (*Engraulis ringens*) Northern Border of Peruvian EEZ To 16^0 South**
Date	April 2020
Report Code	2020-039
Assessor	Jim Daly/Virginia Polonio
Stock(s) Pass	Pass
Stock(s) Fail	

Application details and summary of the assessment outcome				
Name: Austral Group: S.A.A - Pisco; S.A.A - Coishco; S.A.A- Chancay. Pesquera Diamante S.A- Malabrigo and others				
Address:				
Country: Peru		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code**		
Key Contact:		**Title:**		
Certification Body Details				
Name of Certification Body:		SAI Global Ltd		
Assessor Name	**Peer Reviewer**	**Assessment Days**	**Initial/Surveillance / Re-approval**	**Whole fish/ By-product**
Jim Daly/Virginia Polonio	Vito Romito/Geraldine Criquet	3	SURV 1	Whole fish
Assessment Period	2020			

Scope Details	
Management Authority (Country/State)	Ministry of Production (PRODUCE).
Main Species	Anchoveta (*Engraulis ringens*)
Fishery Location	Northern Border of Peruvian EEZ to 16^0 South
Gear Type(s)	Purse seine (industrial fleet)
Outcome of Assessment	
Overall Outcome	**PASS**
Clauses Failed	**NONE**
Peer Review Evaluation	**Agree with assessment determination**

Recommendation	**APPROVED**

Assessment Determination
The Peruvian North-central anchoveta fishery (Anchoveta) extends from the northern end of the Peruvian EEZ down to 16^0S. This represents a single biological stock, expanding in recent warmer years to the Gulf of Guayaquil (3°00' S) in Ecuador. The status of north-central anchoveta as a single biological stock is confirmed by Cahuin et al 2015. Total fishing mortality is restricted using a system of TAC's and Catch Limits per Vessel. Catch restrictions cover the whole fleet, and place both Anchoveta (*Engraulis ringens*) and Longnose anchoveta (*Anchoa nasus*) in a single management unit. In this report Anchoveta fishery for indirect consumption is assessed, Anchoveta from artisanal fleet which is exclusively for human consumption is not included in the scope of this report. However, some references in the reports are aimed at both fisheries as both fisheries artisanal and industrial have regulations and management measures in common, that means that applies for all the fleet independently whether is for direct or indirect consumption. Having said that, the assessor points out that just the indirect fishery is in the scope of this report. Peruvian law allows just up to 5% of non-target species bycatch in weight in this fishery. Catches of other small pelagic fishes such as the South American pilchard (*Sardinops sagax*); Jack Mackerel (*Trachurus murphyi*); Chub mackerel (*Scomber japonicus*) and the Humboldt squid (*Dosidicus gigas*) have begun to contribute to sizeable catches and are considered in this assessment. Information in ETPs species should be improved as the data available are from a private initiative of SALVAMARES observed programme and it should be extended to the whole fleet. However, information has been found enough to pass the clause as improvements have been carried out and developments are planned for this year 2020. More information should be collected to define the direct and indirect impacts that the fishery could have in vulnerable species and habitats. Encountered habitats should be defined with more clarity as there is controversial information through observer reports. However, the assessor has concluded that the fishery can pass habitats' clauses. The assessor determined that Anchoveta **PASSES** for the production of fishmeal and fish oil under the IFFO-RS v 2.0 by-products standard for whole fish.
Peer Review Comments
Agree with assessment determination
Notes for On-site Auditor

Note: This table should be completed for whole fish assessments only.

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

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A	Anchoveta (*Engraulis ringens*)	95%	A1	PASS
			A2	PASS
			A3	PASS
			A4	PASS
Category C	Chilean jack mackerel, *Trachurus murphyi*	<5%	PASS	
Category C	Pacific Chub mackerel, *Scomber japonicus*	<5%	PASS	
Category C	Humboldt squid, *Dosidicus gigas*	<5%	PASS	
Category D	Longnose anchoveta, *Anchoa nasus*	<5%	PASS	
Category D	South American pilchard, *Sardinops sagax*	<5%	PASS	

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

HOW TO COMPLETE THIS ASSESSMENT REPORT

This assessment template uses a modular approach to assessing fisheries against the IFFO RS standard.

Whole Fish

The process for completing the template for a **whole fish** assessment is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table, to determine which categories of species are present in the fishery.
2. ALL ASSESSMENTS: Complete clauses M1, M2, M3: Management.
3. IF THERE ARE CATEGORY A SPECIES IN THE FISHERY: Complete clauses A1, A2, A3, A4 for **each** Category A species.
4. IF THERE ARE CATEGORY B SPECIES IN THE FISHERY: Complete the Section B risk assessment for **each** Category B species.
5. IF THERE ARE CATEGORY C SPECIES IN THE FISHERY: Complete clause C1 for **each** Category C species.
6. IF THERE ARE CATEGORY D SPECIES IN THE FISHERY: Complete Section D.
7. ALL ASSESSMENTS: Complete clauses F1, F2, F3: Further Impacts.

A fishery must score a pass in **all applicable clauses** before approval may be recommended. To achieve a pass in a clause, the fishery/species must meet **all** of the minimum requirements.

By-products

The process for completing the template for **by-product raw material** is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table with the names of the by-product species and stocks under assessment. The '% landings' column can be left empty; all by-products are considered as Category C and D.
2. IF THERE ARE CATEGORY C BYPRODUCTS UNDER ASSESSMENT: Complete clause C1 for **each** Category C by-product.
3. IF THERE ARE CATEGORY D BYPRODUCTS UNDER ASSESSMENT: Complete Section D.
4. ALL OTHER SECTIONS CAN BE DELETED. Clauses M1 - M3, F1 - F3, and Sections A and B do not need to be completed for a by-product assessment.

By-product approval is awarded on a species-by-species basis. Each by-product species scoring a pass under the appropriate section may be approved against the IFFO RS Standard.

SPECIES CATEGORISATION

The following table should be completed as fully as the available information permits. Any species representing more than 0.1% of the annual catch should be listed, along with an estimate of the proportion of the catch each species represents. The species should then be divided into Type 1 and Type 2 as follows:

- **Type 1 Species** can be considered the 'target' or 'main' species in the fishery. They make up the bulk of annual landings and are subjected to a detailed assessment.
- **Type 2 Species** can be considered the 'bycatch' or 'minor' species in the fishery. They make up a small proportion of the annual landings and are subjected to relatively high-level assessment.

Type 1 Species must represent 95% of the total annual catch. Type 2 Species may represent a maximum of 5% of the annual catch (see Appendix B).

Species which make up less than 0.1% of landings do not need to be listed (NOTE: ETP species are considered separately). The table should be extended if more space is needed. Discarded species should be included when known.

The 'stock' column should be used to differentiate when there are multiple biological or management stocks of one species captured by the fishery. The 'management' column should be used to indicate whether there is an adequate management regime specifically aimed at the individual species/stock. In some cases, it will be immediately clear whether there is a species-specific management regime in place (for example, if there is an annual TAC). In less clear circumstances, the rule of thumb should be that if the species meets the minimum requirements of clauses A1-A4, an adequate species-specific management regime is in place.

NOTE: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in the CITES appendices, it **cannot** be approved for use as an IFFO RS raw material. This applied to whole fish as well as by-products.

TYPE 1 SPECIES (Representing 95% of the catch or more)
Category A: Species-specific management regime in place.
Category B: No species-specific management regime in place.

TYPE 2 SPECIES (Representing 5% OF THE CATCH OR LESS)
Category C: Species-specific management regime in place.
Category D: No species-specific management regime in place.

Species categorisation:
Catch restrictions cover the entire industrial fleet, and place both Anchoveta (*Engraulis ringens*) and Longnose anchoveta (*Anchoa nasus*) into a single management unit (PRODUCE Ministerial Order

044/2019 **R2**). Peruvian law allows just up to 5% of non-target species bycatch in weight in this fishery.

IMARPE provides landings data on target and bycatch species in their Evaluación del Plan Operative (POI) **R3**). In their report for 2017 (Jan-June fishery) Anchoveta (97.3% by volume); Pacific Chub Mackerel (2.7% by volume) and other minor species including Chilean Jack mackerel were noted as being landed. At the time of writing of this report landings data from the 2019 Evaluación del Plan Operative (POI) for anchoveta (North-Central) were not available.

Chilean jack mackerel (*Trachurus murphyi*), Chub mackerel (*Scomber japonicus*), South American pilchard (*Sardinops sagax*); and the Humboldt squid (*Dosidicus gigas*) have begun to contribute to sizeable catches recently, as noted in a 2019 PRODUCE press release (**R4**).

The Regional RFMO (South Pacific Regional Management Organisation) have profiles and updated management data (2019) on Chilean jack mackerel *Trachurus murphyi* and Humboldt squid *Dosidicus gigas*. (**R5**)

In a whole fish assessment, Category D species are those which make up less than 5% of landings and are not subject to a species-specific management regime. IMARPE data on South American pilchard is restricted to a 2007 Report (**R6**). In this report Longnose anchoveta (*Anchoa nasus*) and South American pilchard (*Sardinops sagax*) are assessed as Category D species:

Common name	Latin name	Stock	% of landings	Management	Category
Anchoveta	*Engraulis ringens*	Peru Nth border to 16^0S	95%	Ministry of Production (PRODUCE).	A
Chilean jack mackerel	*Trachurus murphyi*	Peru Nth border to 16^0S	<5%	Ministry of Production (PRODUCE).	C
Pacific Chub mackerel	*Scomber japonicus*	Peru Nth border to 16^0S	<5%	Ministry of Production (PRODUCE).	C
Humboldt squid	*Dosidicus gigas*	Peru Nth border to 16^0S	<5%	Ministry of Production (PRODUCE).	C
Longnose anchoveta	*Anchoa nasus*	Peru Nth border to 16^0S	<5%	Ministry of Production (PRODUCE).	D
South American pilchard	*Sardinops sagax*	Peru Nth border to 16^0S	<5%	Ministry of Production (PRODUCE).	D

MANAGEMENT

The two clauses in this section relate to the general management regime applied to the fishery under assessment. 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 publically committed to sustainability	PASS
	M1.4	Fishery management organisations are legally empowered to take management actions	PASS
	M1.5	There is a consultation process through which fishery stakeholders are engaged in decision-making	PASS
	M1.6	The decision-making process is transparent, with processes and results publically available	PASS
		Clause outcome:	**PASS**

Evidence

M1.1:

This assessment concerns the Peruvian North-central anchoveta fishery (Anchoveta) which extends from the northern end of Peru's EEZ down to 16^0S (**Figure** 1 & **Figure** 2):

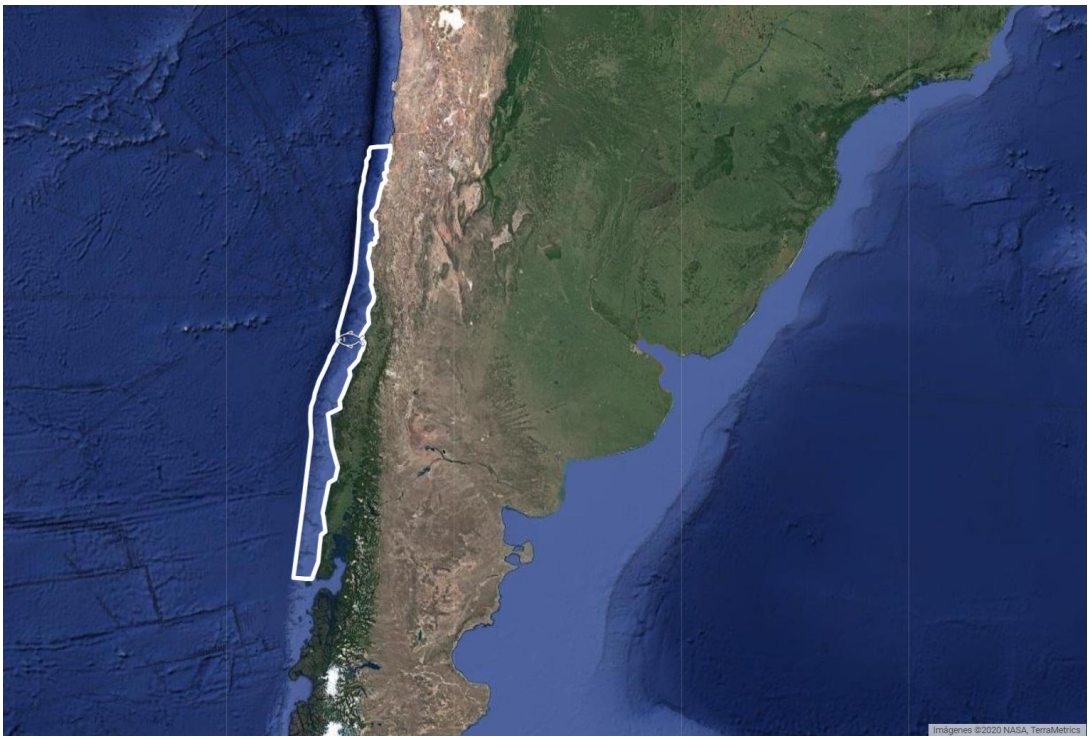


Figure 1. Spatial distribution of industrial fishery of Anchoveta in the Northern-Central Area. (Source: Fishsource- **R7**)

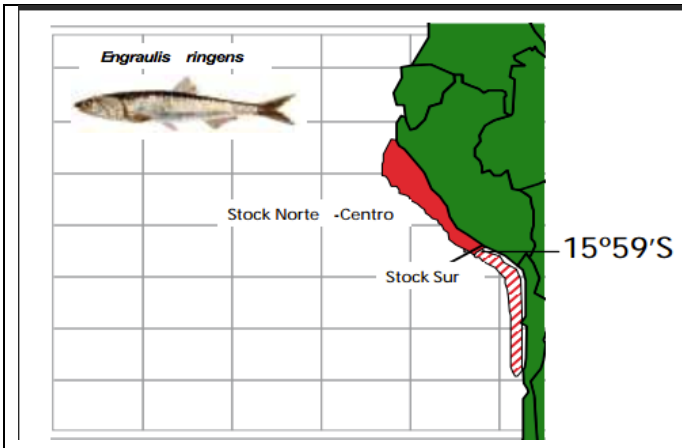


Figure 2. Anchoveta, *Engraulis ringens*, stocks off Peru. **R8**

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

Therefore, there is an organisation responsible for managing the fishery and the stock complex **PASSES** Clause M1.1.
R1-R11

M 1.2:
The Instituto del Mar del Peru (IMARPE) is a specialised Governmental technical agency with responsibility for conducting research necessary to ensure informed fisheries management decisions are taken at the ministerial level. IMARPE conduct stock assessments and recommend annual catch limits of the stock.

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

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

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

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

Therefore, there is an organisation responsible for collecting data and assessing the fishery so the stock complex **PASSES** Clause M1.2.
R3-R6; R12-R13

M1.3:
The Fisheries Law No 25977 (Ley General de Pesca) contains 12 Titles and 90 Articles. Management objectives include ensuring sustainability of fisheries and of aquatic resources. Article 1 recognises fishing as a food and employment source which must be used wisely, maximising economic benefits while preserving biodiversity and the environment.

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

Therefore, fishery management organisations are publically committed to sustainability so the stock complex **PASSES** Clause M1.3.
R14-R15

M1.4:
PRODUCE Decreto Supremo N° 021-2008 (Article 3) gives Officials legal authority to determine the length of fishing seasons and TAC's (el Límite Máximo Total de Captura Permisible (LMTCP)) based on IMARPE recommendations.

PRODUCE publishes lists of sanctions invoked and relevant laws, fines, and fishing suspensions on the ministerial website, as required by Regulations of the Organization and Functions of the Ministry of Production (**R16**).

Regulations relevant to fisheries legislation include:

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

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

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

Therefore, fishery management organisations are legally empowered to take management actions so the stock complex **PASSES** Clause M1.4.
R16-R17

M1.5:
Sociedad Nacional de Pesquería (SNP) is a non-profit organisation having as its mission statement to lead the development of fishing and aquaculture industries in Peru through fighting illegal activities and promoting the protection of the environment through sustainable fishing, good science and innovative practices.

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

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

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

There are several committees to represent all the stakeholders in the fisheries. The decision making process is made publicly available and there is a consultation process through which fishery stakeholders are engaged in decision-making so the stock complex **PASSES** Clause M1.5.
R12-R13; R16-R18

M1.6:
Annual catch limits and technical measures that regulate the fishery are published on the PRODUCE website. IMARPE provide regular reports on activity in the fishery which include, among other reports: Informe Técnicos: results of acoustic surveys; Prospección biológico-pesquera: stock assessments and advice on TAC's; Reporte del Progamas Bitacora de Pesca: observer reports and logsheet data. Local and international Press comment on IMARPE and PRODUCE activities and on the reporting of the state of Peru's fisheries and aquaculture operations. The different committees that represent SNP take part of meetings to agree management measures that are published as ministerial regulations. (R17-18).

The "Direccion General de Politicas y Desarrollo pesquero" uses different management rules to set up the TACs for each fishing season. The three conditions considered are detailed below:
1. Environmental scenario is selected in each fishing season. That is, if the conditions for the stocks this year are: favorable, not favorable or neutral for the anchoveta stock.
2. A target spawning biomass value between the 3 - 6 million tons associated with a risk less than 50% is selected.
3. An exploitation rate that should be less than 0.35% is applied when TAC is defined.

Decision-making processes respond to conflicts that can occurs in the fishery. Legislation has been timely taking into account to respond to general decisions, i.e. when closure has to be done because of the present of juveniles. The application of the S.D. 024-2016-PRODUCE allows to define the fishing areas with high incidence of juveniles. Depending on the percentage of juveniles, the area

will be closed in up to 5 days. Therefore, a precautionary approach based on the best available information is followed when discussing the management strategy and IMARPE recommendations are taken into account.
These management strategies are applied and they are published and revised by IMARPE and the different committies. 2019 protocol can be found in IMARPE website.
(http://www.imarpe.pe/imarpe/archivos/TABLA_DECISION_ANCHOVETA_2019.pdf)

Therefore, there is a consultation process through which fishery stakeholders are engaged in decision-making and the process is transparent, with processes and results publically available.
Therefore, the decision-making process is transparent, with processes and results publically available so stock complex **PASSES** Clause M1.6.

R12-R13; R16-R18

References

Please, go to reference section at the end of the report

Standard clauses 1.3.1.1, 1.3.1.2

M2	Surveillance, Control and Enforcement - Minimum Requirements		
	M2.1	There is an organisation responsible for monitoring compliance with fishery laws and regulations	**PASS**
	M2.2	There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken	**PASS**
	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**

Evidence

M2.1

The implementation and enforcement of fisheries laws and regulations is one of the stated functions of the Ministry of Production, through the Directorate General of Supervision and Control (DGSF, Decreto Supremo No 009-2017 PRODUCE) although landings are also monitored and recorded by the international surveillance company SGS. These third-party operators verify landing operations at 134 designated landing sites.

DGSF publishes and regularly updates a list of vessels prohibited from operating on the fishery, and also lists a significant number of 'featured inspections' and prosecutions on its website. A recent prosecution reported involved illegal landing of anchoveta (**R16**). There are at any one time up to 650 inspectors conducting daily control operations across Peru during periods of heavy fishing activity.

Monitoring and compliance regarding discards and zonal invasions (industrial vessels operating within 5nm from the coastline) are expected to increase with the electronic log system and mandatory positioning system now on board for all fleets. Most infractions relate to excess of juveniles onboard or fishing without prior notification.

Therefore, there is an organisation responsible for monitoring compliance with fishery laws and regulations and the fishery **PASSES** Clause M2.1.

R16, R19-R20

M2.2

PRODUCE publishes lists of sanctions invoked and relevant laws, fines, and fishing suspensions on their website, as required by Regulations of the Organization and Functions of the Ministry of Production. Other regulations relevant to the application of fisheries sanctions include:

- Ley 25977 Ley General de Pesca (Artículos del 76° al 83°).
- Decreto Supremo 012-2001-PE Reglamento de la Ley General de Pesca (Artículos del 126° al 150°).
- Decreto Supremo 016-2007-PRODUCE Reglamento de Inspecciones y Sanciones Pesqueras Acuícolas: Powers of inspectors during inspections, including issuing fines for non-compliances.
- Decreto Supremo No 024-2016-PRODUCE: Measures (fines, withdrawal of licences) to strengthen control and inspection.

Therefore, there is a framework of sanctions which are applied when laws and regulations are discovered to have been broken so the fishery **PASSES** Clause M2.2. **R16, R19-R20**

M2.3:
In 2010, alleged estimates for undeclared anchoveta catches by fishing companies was 10%, confirming that the data gathering system needed improvement (**R21**). One of the goals of the FIP in progress is to organize available data gathered by industrial fishing vessels and encourage further technological innovation and development in order to allow for the more efficient assessment and monitoring of the ecosystem.

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

The fishery is closed to new vessels, there is 24-hour monitoring of all 134 designated landing sites to ensure that only those vessels with a permit are allowed to land catch. There is substantial evidence that these mechanisms have been successful in the limiting of fishing effort, the most important of which is that seasonal landings have not exceeded quotas, i.e. landings at the beginning of the first seasons of 2019 (Nov 6th to Dec 3rd, 2019) were approx. 820 mil t (82% of the total catch in the season) where catches are too high PRODUCE introduced a fishing closure avoiding illegal and to not to exceed the total annual catch. (R. M. 544-2019-PRODUCE)

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

Therefore, there is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing so the fishery **PASSES** Clause M2.3.
R11, R21-R23

M2.4:
Industrial vessels are required by law to operate a Satellite Tracking System (SISESAT), designed to ensure they remain further than 5nm from the coast. In 2016, a mobile app was introduced by DGSF and incorporated into the SISESAT system. PRODUCE states that the app allows accredited inspectors check location, speed, direction and distance of fishing vessels to coast with more accuracy than traditional satellite systems. Mandatory vessel monitoring systems (VMS) are in place, as required by PRODUCE Decrees Nº10/2010, Nº5/2012 and Nº01/2013. The electronic/radio log is required as well for the fishery (PRODUCE 2016a). There is 24-hour monitoring of all 134 designated landing sites to ensure that only those vessels with a permit are allowed to land catch.

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

R23

References
Please go to reference section at the end of the report

Standard clause 1.3.1.3

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. If the species fails any of these clauses it should be re-assessed as a Category B species.

Species Name		Anchoveta *Engraulis ringens*	
A1	**Data Collection - Minimum Requirements**		
	A1.1	Landings data 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 estimated.	**PASS**
		Clause outcome:	**PASS**

Evidence

A1.1:

IMARPE provide regular reports on fishery activities in the fishery including **Informe Técnicos**: results of acoustic surveys; **Prospección biológico-pesquera**: stock assessments and advice on TAC's; **Reporte del Progamas Bitacora de Pesca:** observer reports, daily landings data. Monitoring by independent third-party operators (SGS) verifies landing statistics at a total of 134 designated landing sites. Data collected include dates and location of catch, plus size frequency sampling. Logbooks are publically available in IMARPE website.

Therefore, landings data are collected such that the fishery-wide removals of this species are known so the fishery **PASSES** Clause A1.1.

R13, R24-R25

A1.2:

IMARPE carries out two acoustic surveys every year to evaluate the stock status of the species. In the last report from May 2020, within this scenario of high environmental variability, IMARPE developed the Summer Survey on Acoustics Assessment of Pelagic Resources (anchovy, jack mackerel, mackerel among others, Survey coded 2020-0203) from February 15 to March 29 all along the entire Peruvian coast from Punta Sal (Tumbes) to Morro Sama (Tacna) until a mean off shore distance of 100 n.mi.

The measured acoustic biomass of the North-Central Stock of Peruvian anchovy reached 10.11 million of tones, while the total biomass throughout the Peruvian sea amounted 11.05 million tons. The distribution of anchovy in the North-Central Region was quite coastal, 65% of it was found within the first 10 mn and 95% within the first 30 mn. The stock consisted of individuals whose sizes ranged between 2.0 and 16.5 cm of total length, with a main mode in 9.0 cm and secondary modes in 3.5, 8.0, 11.0 and 15.0 cm. The percentage of juvenile individuals was 89% in number and 75% by weight. Due to the concentration of the larger part of the stock close to the coast the level of mixing of the modal groups was high. Comprehensive analysis of reproductive indicators suggested that the spawning activity of anchovy during the summer was below its pattern. Similarly, the analysis of the indicators of the somatic condition of anchovy suggested that it was also found below the pattern.
Due to the found scenario of high incidence of juvenile fish and high level of geographic overlap between the juvenile and adult modes, it was decided to carry out a second synoptic survey to monitor the possible changes in distribution and the modal progression of fish available to the fishery

and the possible spatial segregation between juveniles and adults. The second survey was carried out from 14th to 28th of April in the main area of distribution of anchovy.

The results of the second survey showed that during the second half of April, oceanographic thermal conditions in the assessed area became slightly cold to neutral. Anchovy was found to be distributed close to the coast all along the surveyed area. It was concluded that oceanographic changes led to a spatial redistribution of anchovy shoals. At the same time it was recorded a somatic growth of individuals, all of which resulted in the availability of high density areas with modal sizes slightly around the minimum allowable fish size of 12 cm.

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

R13, R18, R26-R28

References

Please go to reference section at the end of the report

Standard clause 1.3.2.1.1

A2	Stock Assessment - Minimum Requirements		
	A2.1	A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.	**PASS**
	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 publically available.	**PASS**
		Clause outcome:	**PASS**

Evidence

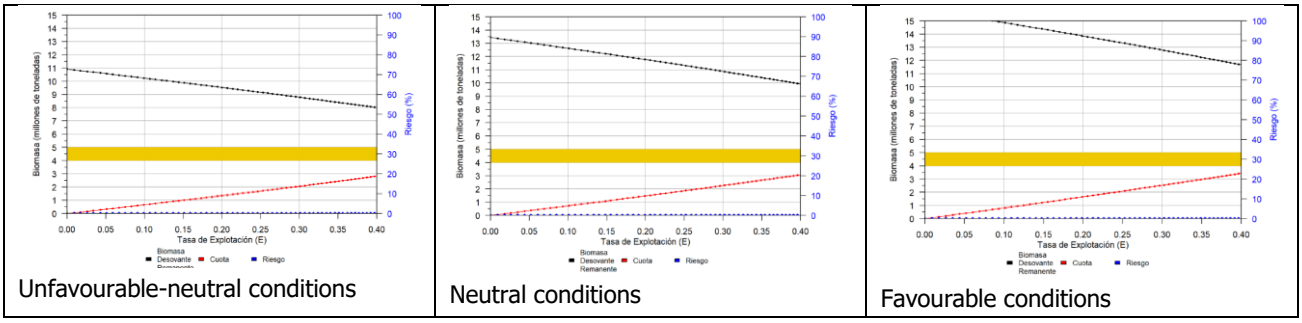
A2.1:

Stock assessments are published twice annually in IMARPE Reports **Situación del Stock Norte-Centro de la Anchoveta Peruana** based on acoustic surveys undertaken in Mar-April and November each year. The data (landings and discards) are collected and reported to IMARPE as logbooks are mandatories for all the fleet.

Therefore, a stock assessment is conducted at least once every 3 years and considers all fishery removals and the biological characteristics of the species so the fishery **PASSES** Clause A2.1.
R13, R27, R29

A2.2:

In the last stock assessment from May 2020 a biomass reference level SSB_{Ref} for the North-Central stock has been established at 5 million tons. The species is strongly dependent on environmental variables, resulting in rapid fluctuations in biomass. Therefore, the assessment has considered three different scenarios depend on environmental condition being, unfavourable, favourable or neutral. According to IMARPE, TAC has been set up to a 0.35 exploitation rate and any of the three possible scenarios exceeds the catches, therefore they are below limit in any circumstance. (Figure 3).



Unfavourable-neutral conditions | Neutral conditions | Favourable conditions

Figure 3. Decision tables related to an unfavourable-neutral-favourable environmental scenario and in which it is assumed that the catches will be taken quickly at the beginning of the season. In the figure, the X axis contains different levels of Exploitation Rate (E), each of which corresponds to a TAC (red line whose value is read on the left vertical axis). The black line is the Spawning Biomass that would become available to the next reproductive year (winter 2020) as a consequence of the level of exploitation rate defined. The yellow bar denotes target and limit spawning biomass levels necessary to sustainably renew the stock. The blue line corresponds to the risk of having a spawning biomass of less than 5 million t as consequence of the Exploitation Rate (IMARPE 2020).

The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy and therefore the fishery **PASSES** clause A2.2. **(R26)**

A2.3:
Using data from the acoustic surveys a decision table is provided by IMARPE to PRODUCE to facilitate estimating the sustainable level of fishing mortality based on announced quotas. The assumption are taken in three different scenarios depends on environmental conditions. Figure 3 above shows the decision tables provided by IMARPE based on acoustic survey data (SSB) derived in May 2020 prior to the opening of the first fishing season. Following the results, target exploitation rate (F) have been established at 0.35, the historical average level for defining quotas, derived from the IMARPE Report on protocol establishing fishing quotas (maximum limit total allowable catch).

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

A2.4:
The FIP in force has achieved formal collaboration with IMARPE and a signed MOU (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.

The assessment is subject to internal or external peer review so the fishery **PASSES** Clause A2.4.
R29

A2.5:
In March 2015 IMARPE published a methodology for generating total permissible catch recommendations. Stock assessments are published twice annually in IMARPE Reports Situación del Stock Norte-Centro de la Anchoveta Peruana based on acoustic surveys undertaken in Mar-April and November each year. Based on these stock assessments PRODUCE issue online Resolución Directorales (RD) or Resolución Ministeriales (RM) which allocate each quota (first and second fishing season) to the fleet.

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

Therefore, the assessment is made publically available so the fishery **PASSES** Clause A2.5.
R13, R24-R28

References
Please go to reference section at the end of the report

Standard clause 1.3.2.2, 1.3.2.1.2, 1.3.2.1.4

A3	Harvest Strategy - Minimum Requirements		
	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 stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.	**PASS**
	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**

Evidence

A3.1

The most recent version of the stock assessment protocol by IMARPE (**R13**) establishes a target exploitation rate (F) of 0.35. This rate is still in operation.

Following publication by PRODUCE of the allocated quota for the first anchoveta season the fishery opened on 04 May 2019. Landings during this season (04 May – 30 July 2019) totalled 2.05 million tons, equivalent to 97.8% of the allocated quota. Based on this quota uptake PRODUCE, through a Resolución Ministerial, closed the fishery on 30 July 2019.

During the second fishing season (opened in November 2019 with an announced TAC of 2.7 million tons) a decision was taken by PRODUCE (**R29**) to close the fishery, with immediate effect, on 15 January. This decision was based on reports from IMARPE of an abundance of juveniles (97.8% in number; 78.9% in weight) in samples taken from the fishery. At this point in the fishery 36% of the TAC had been harvested.

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

R13, R26, R30

A3.2:

In recent years for which data are available, landings have been at or below the advised level. Fishery removals are reduced to reflect estimated biomass and cease entirely when the stock falls below a certain level. Discussions are ongoing with IMARPE and SNP, through implementation of recommendations of a recent workshop on Management Strategy Evaluation (MSE) to generate more discussion on improving the quality of stock assessments and providing greater transparency on how harvest control rules are developed (Figure 3).

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

R24, R29-R30

A3.3:

In the last stock assessment published in May 2020, IMARPE recommended that, for the second fishing season of 2019, the exploitation rate should not exceed the value of E = 0.35, as well as the implementation of the necessary management measures to protect the juvenile fraction of the stock (IMARPE, 2019a). In this context, the Ministry of Production (PRODUCE) authorized the carrying out

of a fishing rate from November 06 (R. M. 477-2019-PRODUCE) and the start of the season proper as of November 16 (R. M. 483-2019-PRODUCE).A Total Maximum Allowable Catch Limit (LMTCP) of 2,786 million t was established. Therefore, commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy so the fishery **PASSES** Clause A3.3. **R26, R30**
References Please go to reference section at the end of the report
Standard clause 1.3.2.1.3

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

Evidence

A4.1

The measured acoustic biomass of the North-Central Stock of Peruvian anchovy reached 10.11 million of tones, while the total biomass throughout the Peruvian sea amounted 11.05 million tons. The biomass reference point is set up at 5 million t. In all the scenarios showed in the assessment report, biomass was above the reference point and the risk of being below with an exploitation rate of 0.35 was nearly null (Figure 3).

Therefore, the stock is at or above the target reference point so the fishery **PASSES** Clause A4.1.

References

Please go to reference section at the end of the report.

Standard clause 1.3.2.1.4

CATEGORY C SPECIES

In a whole fish assessment, Category C species are those which make up less than 5% of landings, but which are subject to a species-specific management regime. In most cases this will be because they are a commercial target in a fishery other than the one under assessment. In a by-product assessment, Category C species are those which are subject to a species-specific management regime and are usually targeted species in fisheries for human consumption.

Clause C1 should be completed for **each** Category C species. If there are no Category C species in the fishery under assessment, this section can be deleted. A Category C species does not meet the minimum requirements of clause C1 should be re-assessed as a Category D species.

Species Name		**Chilean jack mackerel *Trachurus murphyi***	
C1	**Category C Stock Status - Minimum Requirements**		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.	**PASS**
	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.	**PASS**
Clause outcome:			**PASS**

C1.1

Evidence

Since 2010, a joint jack mackerel stock assessment has been conducted, including fisheries independent and dependent data from each fishing country in a statistical catch-at-age model performed by the South Pacific Regional Fisheries Management Organization (SPRFMO)'s Scientific Committee (SC). Catch limits have been agreed for the entire assessment area including the SPRFMO Convention area in accordance with scientific recommendations.

Data, information and decisions from all fishing countries are integrated into this assessment process.

Consequently, fishery removals of the species in the fishery under assessment are included in the stock assessment process so the stock complex **PASSES** clause C1.1.

C1.2

Evidence

A summary of the time series stock status (spawning biomass, F, recruitment, total biomass) for the single-stock hypothesis is shown (**Figure** 4):

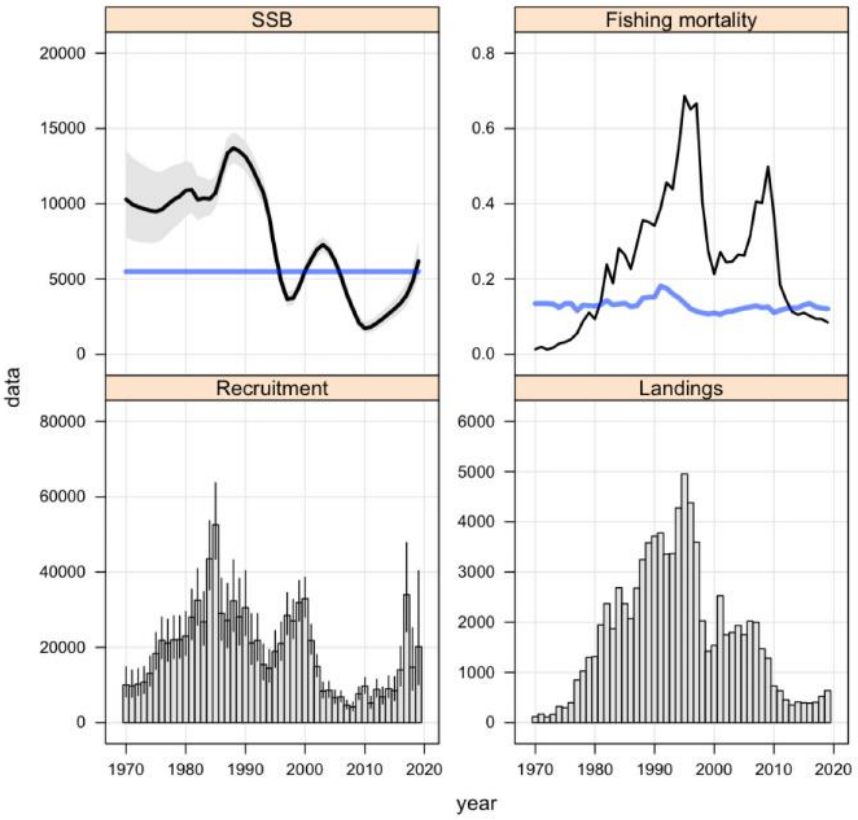


Figure 4. Summary estimates over time showing spawning biomass (top left), recruitment at age 1 (millions; lower left) total fishing mortality (top right) and total catch (kt; bottom right). Blue lines represent provisional BMSY (upper left) and dynamic estimates of FMSY (upper right). (**R31)**

Conditions of the Jack mackerel stock in its entire distribution range in the southeast Pacific shows a continued recovery since the time-series low in 2010. The population trend is estimated to be increasing. Under the current harvest control rule, a 15% increase would result in recommended catch levels at or below 680 kt for 2020.

Projections show a high likelihood of the biomass being rebuilt to BMSY in 2019 under the most conservative recruitment productivity scenario evaluated. The estimated increase in biomass to 90% of the interim B_{MSY}, resulted from the fishing mortality rates decreasing in the past three years to 0.09 in 2018 and well below F_{MSY}, along with the slight recruitment improvement.

Consequently, the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy) so the stock complex **PASSES** clause C1.2.

References

Please go to reference section at the end of the report.

Standard clauses 1.3.2.2

Species Name		Pacific Chub mackerel *Scomber japonicus peruanus*	
C1	**Category C Stock Status - Minimum Requirements**		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.	**PASS**
	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.	**PASS**
Clause outcome:			**PASS**

C1.1

Evidence

Fishery-dependent data are collected when catch is landed and on-board vessels at sea and include effort data. Landings data are collected by the international surveillance company SGS, and include date and location of catch, plus size frequency sampling.

Consequently, fishery removals of the species in the fishery under assessment are included in the stock assessment process so the stock complex **PASSES** clause C1.1.

R32

C1.2

Evidence

IMARPE Report No 1071-2019 (Stock situation and perspectives for the 2020 Pacific Chub Mackerel fishery) was released in Dec 2019. The maximum biomass (2019) from surveys was in October (791,000t), an increase of 58% by volume when compared with values calculated from the March surveys and the highest values obtained since the summer surveys of 2017.

IMARPE recommended for 2020 that the quota for Pacific Chub mackerel should:

1. Maintain Fishing Mortality (F) at the median for the period (2017-19): 0.045
2. Do not exceed a risk factor of 50% that $SSB_{2021} < SSB_{2020}$.

IMARPE conclude that these Fishing Mortality rates may be subject to change should subsequent surveys indicate an increased availability of the stock.

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

R32

References

Please go to reference section at the end of the report

Standard clauses 1.3.2.2

Species Name	Humboldt squid *Dosidicus gigas*		
C1	**Category C Stock Status - Minimum Requirements**		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process OR are considered by scientific authorities to be negligible.	**PASS**
	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.	**PASS**
Clause outcome:			**PASS**

C1.1

Evidence

Catch data of Humboldt squid in the Southeast Pacific Ocean during 2003~2015 were derived from Food and Agriculture Organization (FAO) of United Nation (UN) database. Also, the catch by different fishing entities occurred throughout the whole fishing ground in Southeast Pacific including EEZ of Peru and Chile as well as the adjacent international water, therefore catch data from Chile, Peru, China Japan, Korea, Chinese Taipei and Ecuador are included in the stock assessment.

Therefore, fishery removals of the stock complex are included in the stock assessment process so the stock complex **PASSES** Clause C1.1.

R33

C1.2

Evidence

However the projections have shown uncertainties due to there is no information about size composition or stock structure, the Kobe plot (B/Bmsy) and (F/Fmsy) in different scenarios showed similar patterns.

The fishing mortality has increased over the exploited history however the fishery is not subject to overfishing or the stock is overfished. According the Kobe plot, the stock being overfishing or overfished had never happened since 2003 (Figure 5).

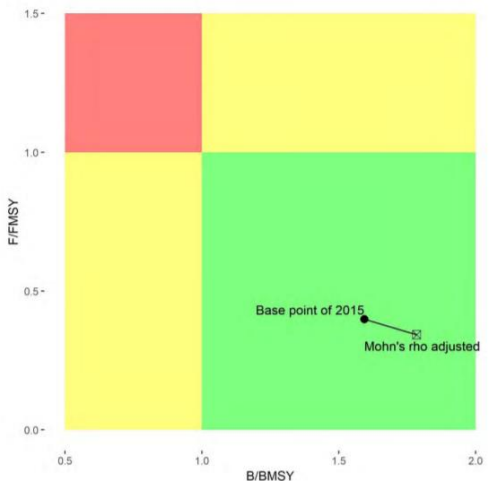


Figure 5. Base point of stock status of terminal year by base scenario of production model and the adjusted value based on Mohn's rho of fishing mortality and biomass (Source: R33).

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point so the stock complex **PASSES** Clause C1.2 **R33**

References

Please go to reference section at the end of the report

Standard clauses 1.3.2.2

CATEGORY D SPECIES

In a whole fish assessment, Category D species are those which make up less than 5% of landings and are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. In a by-product assessment, Category D species are those which are not subject to a species-specific management regime. In both cases, the comparative lack of scientific information on the status of the population of the species means that a risk-assessment style approach must be taken.

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

Productivity and susceptibility ratings are calculated using a process derived from the APFIC document "Regional Guidelines for the Management of Tropical Trawl Fisheries, which in turn was derived from papers by Patrick *et al* (2009) and Hobday *et al* (2007). Table D1 should be completed for each Category D species as follows:

- Firstly, the best available information should be used to fill in values for each productivity and susceptibility attribute.
- Table D2 should be used to convert each attribute value into a score between 1 and 3.
- The average score for productivity attributes and the average for susceptibility attributes should be calculated.
- Table D3 should be used to determine whether the species is required to meet the requirements of Table D4. A species which does not need to meet the requirements of D4 is automatically awarded a pass.
- Table D4 should be used to assess those species indicated by Table D3 to determine a pass/fail rating.
- Any Category D species which has been categorised by the IUCN Red List as Endangered or Critically Endangered, or which appears in the CITES appendices, automatically results in a fail.

D1	Species Name:	Longnose anchoveta *Anchoa nasus*	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	0.5	1
	Average maximum age (years)	1.6	1
	Fecundity (eggs/spawning) **	>10,000	1
	Average maximum size (cm)	17	1
	Average size at maturity (cm)	5.8	1
	Reproductive strategy	Broadcast spawner	1
	Mean trophic level	3.5	3
	Average Productivity Score		**1.29**
	Susceptibility Attribute	**Value**	**Score**
	Overlap of adult species range with fishery	<25%	1
	Distribution	Not used	-
	Habitat	Not used	-
	Depth range	0-142m	3
	Selectivity	Up to 4m in length	3
	Post-capture mortality	Short tows	2
	Average Susceptibility Score		**2.25**
	PSA Risk Rating (From Table D3)		**PASS**

**FAO Fisheries Report No. 291, Volume 3 Batch fecundity and spawning frequency of various anchovetas p 419 http://www.fao.org/tempref/docrep/fao/005/x6851b/x6851b18.pdf

References

Figure 6. Fishbase Longnose anchoveta, *Anchoa nasus*, distribution

R34

References

Please go to reference section at the end of the report

D1	Species Name:	South American pilchard *Sardinops sagax*	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	2.2	2
	Average maximum age (years)	8.6	1
	Fecundity (eggs/spawning)	25,495	1
	Average maximum size (cm)	39.5	1
	Average size at maturity (cm)	19.7	1
	Reproductive strategy	Broadcast spawner	1
	Mean trophic level	2.8	2
	Productivity Score	**Average**	**1.28**
	Susceptibility Attribute	**Value**	**Score**
	Overlap of adult species range with fishery	<25%	1
	Distribution	Not used	-
	Habitat	-	-
	Depth range	0-200 m	3
	Selectivity	>2 times mesh	3
	Post-capture mortality	Short tows	2
	Average Susceptibility Score		**2.25**
	PSA Risk Rating (From Table D3)		**PASS**

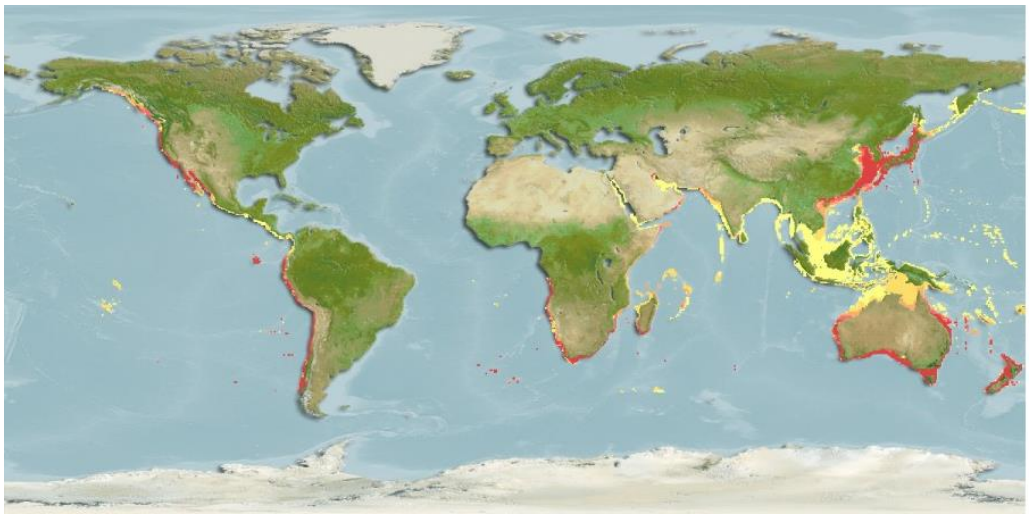


Figure 7. Fishbase South American pilchard*, Sardinops sagax*, distribution

R35

References:
Please go to reference section at the end of the report

Table D2 - Productivity / Susceptibility attributes and scores.

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

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

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

D3		**Average Susceptibility Score**		
		1.00 – 1.75	**1.76 – 2.24**	**2.25 – 3.00**
	1.00 – 1.75	PASS	PASS	PASS

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

FURTHER IMPACTS

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

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

Evidence

F1.1:

There is a national observer program in place for the pelagic fisheries which reports incidental catches however, it is not clear if those incidental catches recorded are all the possible interactions with ETPs species. PRODUCE resolutions do not specified what is considered incidental catches and there is no evidence of recording ETPs.

However, as part of the commitments to the FIP project it has been developed a private observer programme. The "SALVAMARES" Observer Programme, is a private sector initiative to provide information on fleet interaction with protected and endangered species and those caught as incidental by-catch. All interactions with ETPs are recorded in a logbook that is reported to IMARPE but exclusively from the vessels that are part of SNP which are involved in the SALVAMARES project. Therefore, it is recommended that information coming from the vessel targeting anchoveta that are not included in the private initiative should be improved.

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

R36

F1.2:

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

Interactions with seabirds, marine mammals and reptiles were quantified. Interactions reported in the programme don't mean necessarily in harm or mortality for such species and, indeed, such impacts occur with low frequency.

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

A total of 7,612 Southern fur seals (*Arctocephalus australis)* were observed among which 53 died and the rest which escape themselves. South American sea lions (*O. flavescens*) were also observed in high percentage related to other marine mammals. A total of 125,306 sea lions were observed

but 53 deaths were reported; 1664 were released alive and the rest of the observed sea lions escaped themselves with no harm reported.

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

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

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

A total of 178,495 guanay cormorant (*Phalocrocorax bougainvilii*) were observed among which 809 deaths were reported representing 0.45% of the total. Total population of this species is estimated at 3.7 million individuals. CeDePesca report (2019) "Ficha de impacto de la pesquería de anchoveta sobre especies de by-catch y protegidas" has shown that indirect fishery impact could be a reason of decreasing their population but because food limitation rather than the mortalities occurred by the fishing operations. Even though, an estimation consumption of anchoveta by these species have been calculated and considered in perdition models, therefore although it is still a challenge for the fishery to provide a higher coverture of the observer programme that will allow to get a better estimation of the direct impacts, the mortalities reported are low enough to represent a significant negative impact (Birdlife international 2018. **R38-R39**).

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

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

Therefore, there is no substantial evidence that the fishery has a significant negative effect on ETP species and it **PASESS** Clause F1.2
R36

F1.3:
There are measures in place to minimise the impacts on ETPs species even more since there is a FIP project in place. A release-kit and training program are being rolled out. Also, crew of 48 vessels have been trained to identify ETPs species mostly seabirds under the SALVAMARES programme and to report correctly the interactions with those species classified under this category.

Efforts taken to protect ETP species include the establishment of three major Marine Protected Areas (MPAs), covering a total area of 6,305km^2, the National Reserve System of Guano Islands, Isles and Capes; the Paracas National Reserve; and the San Fernando National Reserve. These areas correspond to IUCN category VI protected areas and represent important refuges for seabirds and marine mammals. The aim of the regulation is to protect coastal habitats and breeding zones for several species. Recently, in designated areas, a permanent spatial closure of 3nm along the

Peruvian coastline for all fleet was established. Further, season fishing restrictions are in place to protect juveniles and also breeding seasons for seabirds.

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

Therefore, there are measures in place to minimise mortality of ETP species and the fishery **PASSES** Clause F1.3. **R11, R18, R26, R36-R37**

References

Please go to reference section at the end of the report

Standard clause 1.3.3.1

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

Evidence

F2.1

The gear type is purse seine, the vertical distribution shown in previous IMARPE reports have defined the potential area of interaction with the water column at up to 10 m of depth. There is unlikely impact on benthic habits with purse seine fishing gear.

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

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

R10; R26

F 2.2

Data was provided (SALVAMARES Report 2019) from observed fishing trips on the sediment type remaining on nets after hauling, resulting from incidental interaction with the seabed. Observers reported a total number of interactions with sea beds in 147 shallow water inlets (5% by number of total inlets fished). Sediments observed on the nets after fishing operations included mud, sand and rock.

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

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

R36

F2.3

From October 2018 the Government made available VMS data from the fleets to the Global Fishing Watch (GFW) application. Vessels from both industrial fleets are included. Mandatory vessel monitoring systems (VMS) are in place, as required by PRODUCE Decrees Nº10/2010, Nº5/2012 and Nº01/2013. The electronic/radio log is required as well for the fishery (PRODUCE 2016a).

Any violation of entry into Marine Protected Areas and Vulnerable Marine Ecosystems for fishing operations are prosecuted. Results of these prosecutions are published on the PRODUCE website (**R16**). However, it would be useful to provide a map of VMEs along the Peruvian coast and overlay the fishery footprint to support that the fishery does no operate on any VMEs.

SALVAMARES report has shown that only the 0.5% of the trawls observed presented interactions with the seafloor.

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

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

R11, R13, R16-R17, R22-R23

References

Please go to reference section at the end of the report

Standard clause 1.3.3.2

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

F 3.1

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

Spatiotemporal variability affecting anchoveta at different temporal scales has been studied by several authors. During ENSO events, fish abundance and distribution are significantly affected, often leading to stock crashes and cascading social and economic impacts. These events because regime shifts where anchovetas; sardines or other LTL species alternate as the dominant species in the ecosystem.

Therefore, the broader ecosystem within which the fishery occurs is considered during the management decision-making process and the fishery **PASSES** Clause F3.1.
R26

F3.2

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

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

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

Therefore, there is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem and the fishery **PASSES** Clause F3.2. **R36**

F3.3:

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

IMARPE are currently attempting to quantify the actual needs of the ecosystem to add further evidence to this assumption. The results of the ecosystem modelling work are due to be completed

in March 2020. Ahead of the completion of the ecosystem modelling, some research was conducted estimating the needs of various species in the ecosystem, with regards to anchovy as food. In all the scenarios studied the biomass kept for the next year was above limits. It is estimated that the requirements of these species have been available in recent years, and therefore that the anchovy fishery is not having a negative effect on the recovery of species (**R37**).

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

Therefore, if one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals and therefore the fishery **PASSES** clause F3.3.

R11, R18, R36

Standard clause 1.3.3.3

LIST OF REFERENCES

R1: Cahuin, S.M.; Cubillos, L. A.; Escribano, R. 2015. Synchronous patterns of fluctuations in two stocks of anchoveta Engraulis ringens Jenyns, 1842 in the Humboldt Current System. J. Appl. Ichthyol. 31, 45-50, ISSN 0175-8659. http://onlinelibrary.wiley.com/doi/10.1111/jai.12646/pdf

R2: PRODUCE Ministerial Order 044/2019: Peruvian and Longnose anchoveta assessments https://www.gob.pe/institucion/produce/normas-legales/259715-044-2019-produce

R3: IMARPE Reporting (2017): Evaluación del Plan Operativo (Landings data) http://www.imarpe.gob.pe/imarpe/archivos/informes/eval_poi_segundo_trim2017.pdf

R4: PRODUCE Press Release (2019) on by-catch in the anchoveta fishery: https://www.gob.pe/institucion/produce/noticias/27097-produce-desembarque-del-sector-pesca-crecio-7-5-en-febrero-por-mayor-captura-de-pota-jurel-y-caballa

R5: SPRFMO 2019. 7th SPRFMO Scientific Committee meeting. https://www.sprfmo.int/meetings/scientific-committee/7th-sc-2019/

R6:IMARPE, 2007: Species characteristics South American Pilchard *Sardinops sagax* 6pp http://www.imarpe.gob.pe/imarpe/archivos/articulos/imarpe/recursos_pesquerias/adj_pelagi_adj_pelagi_sardi_mar07.pdf

R7: Fishsource Anchoveta Chilean Central-Southern https://www.fishsource.org/stock_page/1380

R8: Mapping South America's fish stock boundaries: Christopher M. Free Sustainable Fisheries Group UC Santa Barbara: https://marine.rutgers.edu/~cfree/mapping-south-american-fish-stock-boundaries/

R9: PRODUCE homepage: https://www.gob.pe/produce

R10: PRODUCE Plataforma digital Cierre de 61 zonas para la conservación del stock de Anchoveta Enero2020.https://www.gob.pe/institucion/produce/noticias/77881-produce-realizo-61-cierres-preventivos-de-zonas-de-pesca-para-favorecer-conservacion-de-la-anchoveta

R11: Peruvian anchoveta FIP Fishery Progress: https://fisheryprogress.org/fip-profile/peruvian-anchoveta-industrial-purse-seine

R12: IMARPE Homepage: http://www.imarpe.gob.pe/imarpe/

R13: IMARPE (March 2015) Protocolo "Estimación de la Captura Total Permisible del Stock Sur de la Anchoveta Peruana 3pp http://www.imarpe.gob.pe/imarpe/archivos/informes/imarpe/protocolo_captu_stok_ancho_sur.pdf

R14: General Fisheries Law No 25977 http://extwprlegs1.fao.org/docs/pdf/per1377.pdf

R15: Peru approves new innovative environmental policies: https://www.forest-trends.org/blog/peru-approves-new-innovative-environmental-policies/

R16:PRODUCE Resolución Directoral N° 04985-2018-PRODUCE/DS-PA (Fines applied) https://cdn.www.gob.pe/uploads/document/file/203422/97443_1.pdf

R17: PRODUCE Protocol (No. 054-2019-MP-FN) Combat IUU activities:

http://cedepesca.net/wp-content/uploads/2017/05/DS-005-2017-PRODUCE_ROP-anchoveta-CHD.pdf

R18: Sociedad Nacional de Pesquería (SNP) Mission Vision Statement, Summary 2019 First anchoveta season: https://www.snp.org.pe/mision-y-vision/

R19: PRODUCE Organigramme (2017) Discreto Supreme No 009-2017: https://cdn.www.gob.pe/uploads/institution/orgchart/000/000/055/organigrama.pdf

R20: DECRETO SUPREMO Nº 016-2007-PRODUCE: el Reglamento de Inspecciones y del Procedimiento Sancionador de las Infracciones en las Actividades Pesqueras y Acuícolas: http://www2.produce.gob.pe/dispositivos/publicaciones/2007/octubre/ds016-2007-produce.pdf

R21: Mendo, J.; Wosnitza-Mendo, C. Reconstruction of total marine fisheries catches for Peru: 1950-2010. Fisheries Centre The University of British Columbia Working Paper Series Working Paper #2014 – 21. 24 pp. http://www.seaaroundus.org/doc/publications/wp/2014/Mendo-et-al-Peru.pdf

R22: PRODUCE Press Release (Oct 2019): Perú ha demostrado liderazgo global en compartir sus datos de vigilancia pesquera: https://www.gob.pe/institucion/produce/noticias/61260-produce-peru-ha-demostrado-liderazgo-global-en-compartir-sus-datos-de-vigilancia-pesquera

R23: PRODUCE 2016a. 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 anchoveta. Lima, 15 de noviembre de 2016. http://busquedas.elperuano.com.pe/download/url/decreto-supremo-que-establece-medidas-para-fortalecer-el-con-decreto-supremo-n-024-2016-produce-1453690-4

R24: IMARPE Reports (2013-2017) Situación del Stock Norte-Centro de la Anchoveta Peruana: http://www.imarpe.gob.pe/imarpe/include/busqueda.php

R25: IMARPE Observer Reports, Programme: http://www.imarpe.gob.pe/imarpe/archivos/informes/imarpe_otropr_bitaco_otro_progra_set10.pdf

R26: IMARPE 2020: North-central Peruvian anchovy stock (*Engraulis ringens*) situation during May 2020 and exploitation perspectives for the first 2020 fishing season.

R27: Sociedad Nacional de Pesquería (SNP) Report No 2/2019: Resumen sobre la actividad pesquera industrial Source IMARPE https://www.snp.org.pe/media/pdf/Boletin-Temporada-de-Pesca/Boletin-03.pdf

R28: PRODUCE RM 483/2019: Quota allocation for 2nd fishing season 2019 (Nov): https://busquedas.elperuano.pe/normaslegales/autorizan-el-inicio-de-la-segunda-temporada-de-pesca-del-rec-resolucion-ministerial-n-483-2019-produce-1825767-1/

R29: R Hilborn, R.Amoroso School of Aquatic and Fishery Sciences University of Washington Dec 2019 20pp) Management Strategy Evaluation for the Anchoveta Fishery (ppt Presentation) https://cedepesca.net/wp-content/uploads/2020/01/2019-12-11_MSE-presentation.pdf

R30: PRODUCE Resolución Ministerial No 015/2020 3pp Stop Fishing Notice (13.01.2020). https://www.gob.pe/institucion/produce/informes-publicaciones/395573-resolucion-ministerial-n-015-2020-produce-dan-por-concluida-la-segunda-temporada-de-pesca-2019-del-recurso-anchoveta-y-anchoveta-blanca-correspondiente-a-la-zona-norte-centro

R31: SPRFMO 7th Scientific Committee (SC7-Report) Annex 8. Jack Mackerel Technical Annex Rev11https://www.sprfmo.int/assets/2019-SC7/Reports/SC7-Report-Annex-8-JM-Tech-Annex-Rev1.pdf

R32:human

PRODUCE Resolución Ministerial No 025/2020 Pacifc chub mackerel TAC for 2020 https://cdn.www.gob.pe/uploads/document/file/476847/RM_N__025-2020-PRODUCE.pdf

R33: Luoliang Xu, Bai Li, Gang Li, Xinjun Chen & Yong Chen, (2017). A Stock assessment of the jumbo flying squid (Dosidicus gigas) in Southeast Pacific Ocean. 5th Meeting of the Scientific Committee Shanghai, China. 23 - 28 September 2017. SC5-SQ02

R34: Fishbase Longnose anchoveta distribution

https://www.fishbase.in/Summary/SpeciesSummary.php?ID=1163&AT=LONGNOSE+ANCHOVETA

R35: Fishbase: South American Pilchard *S. sagax* https://www.fishbase.de/summary/Sardinops-sagax.html

R36: Report No 3 (2019 12pp) PROGRAMA "SALVAMARES" Onboard observer reports: https://cedepesca.net/wp-content/uploads/2020/01/2019-10-16_Report-of-the-Private-Observer-Program-on-board.pdf

R37: Ficha de impacto de la pesquería de anchoveta sobre especies de by-catch y protegidas. http://cedepesca.net/wp-content/uploads/2018/04/CeDePesca_Fichas-de-impacto-de-la-pesquer%C3%ADa-de-anchoveta-2017-11-29.pdf

R38: BirdLife International. 2018. *Sula nebouxii*. The IUCN Red List of Threatened Species 2018: e.T22696683A132588719. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22696683A132588719.en.

R39: BirdLife International. 2018. *Sula variegata*. The IUCN Red List of Threatened Species 2018: e.T22696686A132589026. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22696686A132589026.en.