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Global Standard for Responsible Supply of Marine Ingredients
Fishery Assessment Methodology and Template Report V2.0

IFFO RS
Global Standard for Responsible Supply
of Marine Ingredients

Fishery Under Assessment	South Pacific Hake (*Merluccius gayi*)
Date	**February 2019**
Assessor	**Jim Daly**

Application details and summary of the assessment outcome		
Name: Productos pesqueros S.A Produpes.		
Address:		
Country: Ecuador	**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	0.5	Surveillance 2	By-product
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	Ecuador INP /Peru IMARPE
Main Species	South Pacific Hake (*Merluccius gayi*)
Fishery Location	FAO 87 – Pacific Southeast
Gear Type(s)	Purse seine
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	PASS
Recommendation	APPROVE

Assessment Determination

Government control of fisheries in Peru is exerted by the Ministry of Production (PRODUCE), by means of its Vice-Ministry of Fisheries, both of which are informed and advised by the Peruvian marine research institute, IMARPE. The Fisheries and Fisheries Development Law (1974) was revised in Ecuador in 1985. The law covers capture, aquaculture, processing and trade.

Peruvian hake (*Merluccius gayi*) latitudinal distribution extends from northern Ecuador (01^0N) to central Peru (14^0S) (**Figure 1**). A stock is also considered to occur between the northern limit of Peru (03^0S) and Huarmey Peru (10^0S). Information on this shared stock has been provided by competent authorities in Peru as no current information on the stock was available on Ecuador's National Fisheries Institute website. Total survey biomass in 2015 was estimated to be around 294,744t (source PERU IMARPE).

For the Industrial fishing sector in Peru, IMARPE has recommended the implementation of square mesh in the trawl nets, in order to increase selectivity. The minimum size of 28 cm (as a provisional measure with the intent of implementing a gradual increase to 35cm as part of the recovery plan), as well as the juvenile bycatch limit (20%) and closed areas currently in place, were advised to be maintained.

Peruvian hake's status has been associated with high uncertainty in recent years due to environmental variability and population changes in response to fishing pressure. Both 2013 and 2014 autumn surveys, have indicated that the stock condition has been improving since 2012, and assessment authors noted that the objective of recovering the stock by 20% – 30% since 2012 has been achieved. Stock biomass (SSB) has reportedly been increasing since 2012 but more recent estimates of SSB have not been made publicly available.

South Pacific is currently not assessed on the IUCN Red List (13.02.19). The species is approved by the assessment team for the production of fishmeal and fish oil under the IFFO-RS v 2.0 standard (by-products).

Peer Review Comments

Notes for On-site Auditor

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

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C	South Pacific Hake (*Merluccius.gayi*)	N/A	PASS	
Category D				

[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.

| Common name	Latin name	Stock	% of landings	Management	Category
South Pacific Hake	*Merluccius gayi*	Ecuador/Peru	N/A	Peru/Ecuador	C

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		South Pacific Hake *Merluccius gayi*	
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**

Evidence
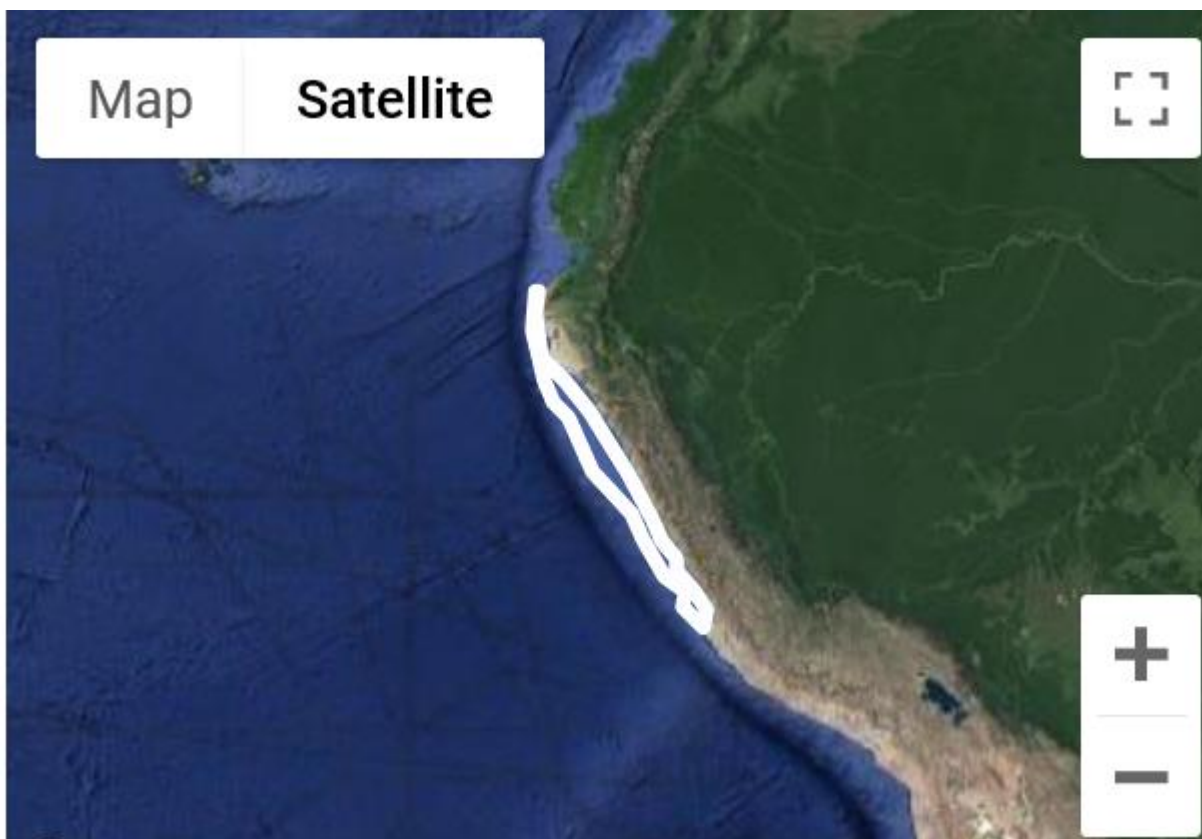
Figure 1 Distribution South Pacific Hake (adapted from Fishsource R3)

C1.1:

Government control of fisheries in Peru is exerted by the Ministry of Production (PRODUCE), by means of its Vice-Ministry of Fisheries, both of which are informed and advised by the Peruvian marine research institute, IMARPE. Many regulations and decrees apply specifically to the Peruvian hake fishery, establishing, for example, fishing periods, fishing areas, Total Allowable Catches (TAC) and Individual Fishing Quotas.

The Peruvian hake fishery is managed in accordance with Fishery Management Rules stated in Supreme Decree (D.S.) No. 016-2003-PRODUCE, modified later by D.S. No. 018-2006. These rules aim to reduce fishing effort so that recovery to sustainable levels is achieved in the medium-term via setting a TAC and defining the fishing season. Peruvian hake is considered to be in a recovery phase, although the current stock status in not fully known.

IMARPE, the marine research institute of Peru, is in charge of the assessment of Peruvian hake populations; including the shared stock with Ecuador (**Figure 1**). Assessments are based on direct and indirect methods and process studies, and research oriented towards the assessment of abundance, distribution and availability of resources and their relationship with their environment. Cohort and Virtual Population Analysis (VPA) analyses are used to assess the stock and a Thomson and Bell model employed to produce projections of short-term stock status.

Two annual survey cruises are conducted solely by IMARPE, and at least two complementary surveys are run with the help of the trawl fleets for verification purposes. IMARPE uses swept area and acoustic methods, and VPA along with information from commercial fishing is used as the assessment model. In addition, Panels of International Experts are summoned from time to time to assess the stock and make further recommendations. Stock assessments results are not regularly made available, however.

Monthly landing reports from designated ports in Ecuador are available, the latest posted in January 2019. Length frequencies, maturity stage and other population and species parameters are available. There is no evidence of stock assessments undertaken for this species by the Fisheries Institute (INP) in Ecuador EEZ.

Fishery removals of the species in the fishery under assessment are included in the stock assessment process. **The species passes Clause C1.1.**

C1.2:

Peruvian hake's status has been associated with high uncertainty in recent years due to environmental variability and population changes in response to fishing pressure. Spawning has been mainly sustained by specimens of ages 2 and 3, given the lack of older specimens, and 2011 spawning biomass (most recent estimates available) was well below its Limit Reference Point (100,000 tonnes), at 45,300 tonnes.

However both 2013 and 2014 autumn surveys, have indicated that the stock condition has been improving since 2012, and assessment authors noted that the objective of recovering the stock by 20% – 30% since 2012 was achieved. Total survey biomass in 2015 was estimated to be around 294,744t, below the 2014 estimate of 400,000t but the 2015 age structure showed a more stable structure, including older age groups than in 2014, when age 2 individuals appeared to dominate the abundance. However, no specific estimates of SSB against reference points were made available. No fishing mortality estimates have been made available in recent years.

Both total and spawning biomass (SSB) have shown large oscillations throughout their time series as a result of environmental changes and of fishing intensity with SSB ranging from over 620,000t in 1978 to nearly

80,000t in 1983 back to over 450,000t in 1996. In 2002, SSB fell to historically low levels, below Blim of 100,000 tonnes, and has not recovered from the 28,000 – 45,000 tonnes level since then.

Other biological indicators show a decrease in mean size from ~43 cm at the start of the fishery's exploitation to ~25 cm in recent years, an increase in natural mortality and lower reproductive success. Stock biomass (SSB) has reportedly been increasing since 2012 but more recent estimates of SSB have not been made publicly available.

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy). Survey biomass data and current age structures show a more stable stock structure. **The species passes Clause C 1.2.**

References

R1 Fishsource South Pacific Hake: https://www.fishsource.org/stock_page/1426

R2 http://www.institutopesca.gob.ec/merluza/

R3 Fishsource South Pacific Hake Peru/Ecuador Stock: https://www.fishsource.org/stock_page/851

R4 IMARPE, 2014b. Situación actual de la poblacion de la merluza peruana (Merluccius gay peruanus) y perspectivas de explotación durante Julio 2014- Junio 2015. Instituto del Mar del Peru (IMARPE). Callao, Perú. 7 pp. (In Spanish.)http://www.imarpe.pe/imarpe/archivos/informes/stuac_merlu_jul14_jun15.pdf

R5 IUCN Red list: http://oldredlist.iucnredlist.org/search

R6 **National Fisheries Institute (Ecuador):** http://www.institutopesca.gob.ec/merluza/

R7 Ministerio de Agricultura, Ganadería, Acuacultura y Pesca http://www.institutopesca.gob.ec/valores-mision-vision/

R8 Ecuador Hake fishery. 2013 (Pesquería del recurso merluza (Merluccius gayi) en el Ecuador Continental. 2013) http://www.cedepesca.net/wp-content/uploads/2014/10/Informe%202013%20merluza%20Ecuador.pdf

R9 INSTITUTO NACIONAL DE PESCA INFORME DE SEGUIMIENTO DEL ESTADO BIOLÓGICO DE MERLUZA (Merluccius gayi) – ENERO, 2018 http://www.institutopesca.gob.ec/wp-content/uploads/2016/08/MERLUZA-SEPTIEMBRE-2018.pdf

Standard clauses 1.3.2.2