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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Pacific Thread Herring Pinchagua (*Opisthonema spp*)**
Date	**April 2020**
Report Code	**2020-75**
Assessor	**Vito Romito**
Stock Pass	**Pass**
Stock Fail	

Application details and summary of the assessment outcome				
Name: Productos pesqueros S.A Produpes. IFFO186. 11/10/2020				
Address:				
Country:		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code:**		
Key Contact:		**Title:**		
Certification Body Details				
Name of Certification Body:		**SAI Global Ltd**		
Assessor	**Peer Reviewer**	**Assessment Days**	**Surveillance/ Re-approval**	**Whole fish/ By-product**
Vito Romito	Virginia Polonio	0.5	Surveillance 2	By/product
Assessment Period	2020			

Scope Details	
Management Authority (Country/State)	Subcomponent of pelagic fishery INP and MAP Ecuador - Managed by INP and MAP Ecuador
Main Species	Pacific Thread Herring
Stock:	Pacific Thread Herring also called Pinchagua (*Opisthonema spp.*) in FAO 77– Pacific Eastern Central and FAO 87 – Pacific Southeast
Fishery Location	Ecuadorian waters
Gear Type(s)	Purse Seine
Outcome of Assessment	
Peer Review Evaluation	**APPROVE**

Recommendation	**APPROVE**

Assessment Determination
Pacific thread herring (*Opisthonema spp.*; locally known as "pinchagua") refers to three different species in Ecuador: *Opisthonema bulleri*, *O. libertate* and *O. medirastre*. There is no information on stock structure of any of the three species in Ecuador; however, for assessment purposes, *Opisthonema spp*. off Ecuador is considered a single and independent stock. *Opistonema spp*. is one of the main species group targeted by the fishery of small pelagics in Ecuador, where it is used for human consumption. If any species is categorised as Endangered or Critically Endangered on IUCN's Red List, or if it appears in the CITES appendices, it cannot be approved for use as IFFO RS raw material. *Opisthonema spp* (3 species mentioned above) does not appear as Endangered or Critically Endangered on IUCN's Red List, nor does it appear in CITES appendices; therefore, Pacific thread herring is eligible for approval for use as IFFO RS by-product raw material. One stock forms part of this assessment: 1) Pacific thread herring (Pinchagua) in Area FAO 77- Pacific Eastern Central and Area FAO 87 - Pacific Southeast (Ecuadorian waters) Fishery removals of the stock are considered in the various stock assessment processes so the stock **PASSES** Clause C1.1. For Pinchagua in the assessment area the most recent estimated spawning stock biomass (SSB) is above Blim and removals are not considered to be negligible therefore, the stock **PASSES** Clause C1.2. In order to be approved, the stock assessed must pass both Clause C1.1 and C1.2; therefore: Pinchagua is **APPROVED** by SAI Global assessors in the assessment area for the production of fishmeal and fish oil under the current IFFO RS v 2.0 by-products standard.
Peer Review Comments
Overall the biomass has decreased and the fishing mortality has increased over the years but following the last stock status Biomass is below 20% of B0 as it is defined in the model MESTOCKL. The report concludes that fishing pressure and catches should be reduced to preserve the species however because clauses C1.1 and C1.2 have passed the Peer review considers fishery can be approved under the current IFFO RS v 2.0 by-products standard.
Notes for On-site Auditor

HOW TO COMPLETE THIS ASSESSMENT REPORT

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
Pacific thread herring	*Opisthonema spp*	Pacific thread herring in Ecuadorian waters	NA	INP and MAP 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			
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:			**See above**
C1.1 **Evidence** This assessment covers Pacific thread herring in Ecuadorian waters from the areas outlined in **Figure 1** below.			

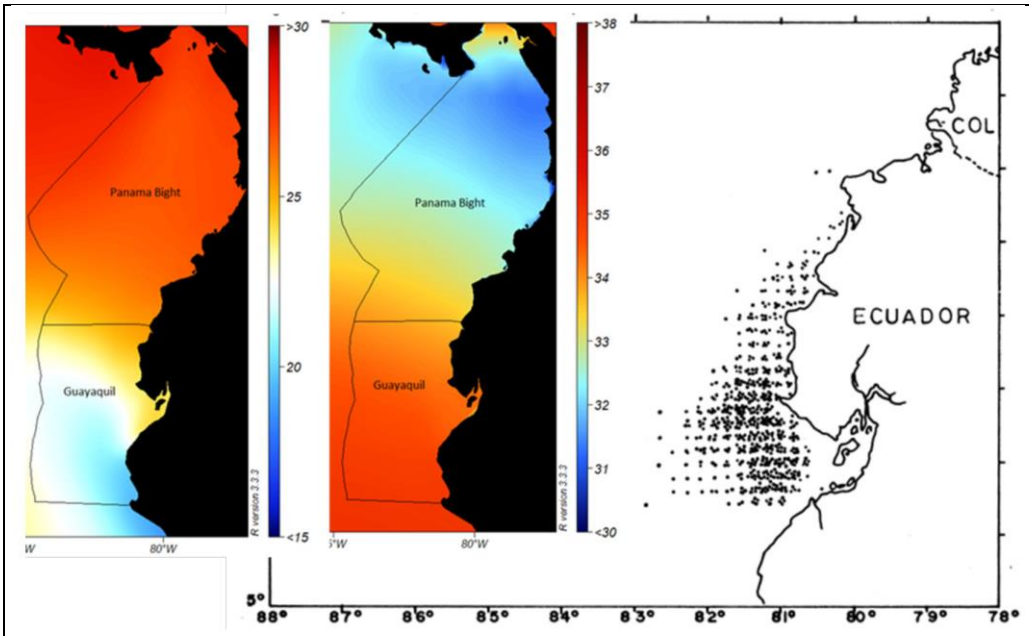

Figure 1. Right: Ecuador's marine ecoregions (Spalding et al., 2007): Surface temperature of the sea (C°) (left) and surface salinity (UPS). Left: Spatial distribution of the fisheries of small pelagics from Ecuador.

Pacific thread herring (*Opisthonema spp*.; known as "pinchagua") refers to three different species in Ecuador: *Opisthonema bulleri*, *O. libertate* and *O. medirastre*. There does not appear to be any information on stock structure of any of the three species in Ecuador; however, for assessment purposes, *Opisthonema spp.* off Ecuador is considered a single and independent stock. *Ophistonema spp.* is one of the main species group targeted by the small pelagics purse seine fishery in Ecuador (Prado España 2009).

The most recent stock assessment for Pacific thread herring in Ecuador was conducted in 2019 by Canales et. al., 2019[1] using two methods/models, a data poor size-based model (MODACT) and an age-based statistical model (MESTOCK). Canales et. al. (2019) reported that that Pinchagua (*Opisthonema spp*.) is one of the traditional resources of small pelagic fisheries, with more than 40 years of history.

In the last assessment of 2019, catch data (landings from 1975-2016), landing site information (e.g. number of hauls proportion of small pelagic species), biological information such as weight, sex and size, catch per unit effort, acoustic survey information until 2018, as well as available life history information has been used.

Accordingly, fishery removals of the species are included in the stock assessment process and therefore the fishery passes clause C1.1

[1] https://globalmarinecommodities.org/wp-content/uploads/2020/01/INFORME-PELA%CC%81GICO-INFORME-PPAL-.pdf

C1.2

Evidence

The most recent stock assessment for Pacific thread herring in Ecuador was conducted in 2019 by Canales et al., 2019 using two methods/models - a data poor size-based model (MODACT) and an age-based statistical model (MESTOCKL). Canales et. al. 2019 reported that that Pinchagua (*Opisthonema spp*.) is one of the traditional resources of small pelagic fisheries. During the last decade, fishing mortality has fluctuated oscillating above the reference point, while spawning biomass has continued to decrease. Thread herring was assessed in 2019 in combination with other small pelagic species.

Reference points

Both spawning biomass and fishing mortality were contrasted with respect to values relative to virgin biomass (B0). A Biological Reference Point of 40% of B0 was considered objective, while the maximum fishing mortality level was estimated as that generated in the long term 40% of B0 (F40%). The variation of the spawning biomass was then contrasted based on two indicators of spawning potential; a dynamic one which corresponds to the ratio between biomass and virgin biomass given the value annual private recruitment, and another long term, which is the ratio between the annual biomass and the virgin biomass B0 estimated from recruitments.

Spawning biomass is currently estimated at around 30 thousand tons and below the reference value/point of 40% B0 in most cases analysed. The precision in these estimates is considered high, which is reflected in coefficients of variation below 20% and confidence intervals closely adjusted to the main trendline. The report also provides information about the limit reference point for biomass assumed for the MESTOCKL model, which is considered to be 20% of B0. Accordingly, we note that the % of B0 in the past 5 years has averaged 34% of B0, as shown in the table below.

Table 1. Main population indicators of the pinchagua resource for the last 10 years.

Año	Reclutas (#)	B. explotable (t)	B. desovante (t)	F	%B0
2007	1,122	100,959	64,815	0.193	0.651
2008	219	103,455	66,842	0.357	0.645
2009	350	89,174	58,981	0.375	0.562
2010	773	72,221	42,582	0.850	0.442
2011	839	58,386	31,848	0.508	0.342
2012	563	68,592	37,163	0.780	0.376
2013	691	63,155	36,475	0.295	0.351
2014	730	75,025	43,010	0.515	0.403
2015	325	71,735	41,770	0.739	0.383
2016	296	52,791	33,412	0.313	0.319
2017	645	52,651	29,822	0.805	0.318

In the figure below we also provide information on biomass, fishing mortlality, recruitment and % of spawning potential. *Accordingly, it is thought that the pinchagua stock is likely to be above the limit biomass reference point.*

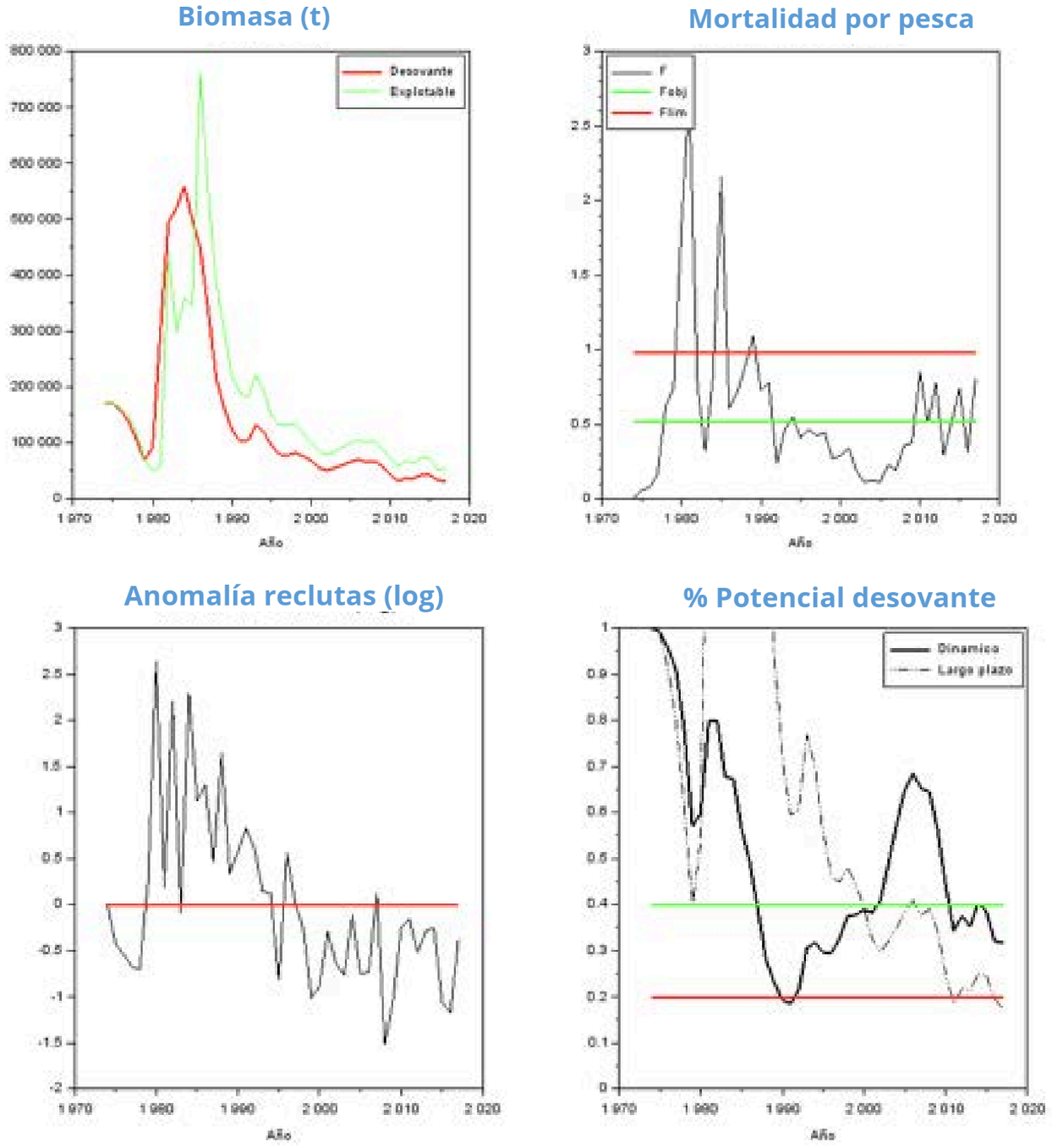

Figure 3. Biomass, fishing mortality, recruitment and spawning potential of the pinchagua resource.

References

Canales, C., V. Jurado, M. Peralta, D. Chicaiza, E. Elías, M. Preciado, M. Hurtado, E. Landívar, C. Alemán, and G. Sandoval. 2019. Evaluación de stock de peces pelágicos pequeños en la costa continental ecuatoriana. https://globalmarinecommodities.org/wp-content/uploads/2020/01/INFORME-PELA%CC%81GICO-INFORME-PPAL-.pdf

CITES. 2020. CITES Appendices I, II and III valid from 26 November 2019. Convention on International Trade in Endangered Species of Wild Fauna and Flora. Accessed 29 April 2020.

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Prado España, M. 2009. La pesquería de peces pelágicos pequeños en Ecuador durante el 2008. Boletín Científico Técnico 20(4):1-25.

Standard clauses 1.3.2.2