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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Skipjack tuna (*Katsuwonus pelamis*) FAO 77 (Pacific Eastern Central), FAO 87 (Pacific South East)**
Date	**May 2019**
Assessor	**Jim Daly**

Application details and summary of the assessment outcome				
Name: Negocios Industriales Real				
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	Re-approval	By-product
Assessment Period	2019			

Scope Details	
Management Authority (Country/State)	Inter-American Tropical Tuna Commission (IATTC)
Main Species	Skipjack tuna (*Katsuwonus pelamis*)
Fishery Location	FAO 77 (Pacific Eastern Central), FAO 87 (Pacific South East)
Gear Type(s)	Purse seine, longline, pole & line, artisanal
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	None
Peer Review Evaluation	Agree
Recommendation	Approve

Assessment Determination

The Regional Fishery Management Organisation (RFMO) managing the fishery in the assessment area is the Inter-American Tropical Tuna Commission (IATTC). The objective of this RFMO is to ensure the long-term conservation and sustainable use of tuna, tuna-like and other fish species taken by vessels fishing in the Eastern Pacific Ocean (EPO) in accordance with the relevant rules of international law. Recent Resolutions adopted by IATTC include a 2016 Resolution on Harvest Control Rules for Tropical Tuna including Skipjack:

IATTC Convention Area (Source www.iattc.org)

Skipjack tuna:

Traditional stock assessment models are difficult to apply to skipjack tuna because of their characteristics (continuous spawning, spatial variation in growth, discrimination of effort for fishing on free schools and on Fish Aggregating Devices (FADs)). Instead data and model-based indicators are used.

Maunder and Deriso (2007) investigated some simple indicators of stock status based on relative quantities. Rather than using reference points based on MSY, they compared current values of indicators to the distribution of indicators observed historically. They also developed a simple stock assessment model to generate indicators for biomass, recruitment, and exploitation rate. Results have been updated to include data up to 2017 (**R1, R3**).

Although biomass, recruitment, and fishing mortality indices are estimated to be highly variable over time, data and model-based indicators have yet to detect any adverse impacts of removals on this fishery. The species is considered, when applying the most recent stock indicators, to have a biomass above the limit reference point (or proxy). Fishery removals of the species in the fishery under assessment are included in the stock assessment process.

IUCN has categorised skipjack tuna as a species of least concern. The species does not appear in the current CITES appendices (both sites accessed 20.05.19).

The assessment team recommends the approval of skipjack tuna (Eastern Pacific Ocean fishery) as a by-product species under the current IIFO RS Standard (v2.0).

Peer Review Comments

Agree

Notes for On-site Auditor

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C	Skipjack tuna (*Katsuwonus pelamis*)	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]

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
Skipjack tuna	*Katsuwonus pelamis*	FAO 77,87	N/A	IOTC	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		**Skipjack tuna** *Katsuwonus pelamis*	
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**

Eastern Pacific Ocean (EPO) Fishery:

Clause C1.1:

Maunder and Deriso (2007) investigated some simple indicators of stock status based on relative quantities. Rather than using reference points based on MSY, they compared current values of indicators to the distribution of indicators observed historically. They also developed a simple stock assessment model to generate indicators for biomass, recruitment, and exploitation rate. Results have been updated to include data up to 2017 (**R1, R3**).

EPO Skipjack are caught by purse seine, longline, pole & line and artisanal vessels. It is likely that there is a continuous stock throughout the Pacific Ocean with some exchange of individuals occurring at local level. Large-scale movements (from Eastern to Western Pacific Ocean) are thought to be rare.

For stock assessments of skipjack seven purse-seine fisheries and one pole-and-line fishery are defined. During 2001-2015 the annual retained catch in the EPO (purse-seine, pole and line fisheries) averaged 242,000t. The preliminary estimate of retained catch in 2016 was 337,000t. Small amounts of EPO skipjack are caught with longlines and other gears.

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

Clause C1.2:
Biomass, recruitment, and fishing mortality are estimated to be highly variable over time. Estimates differ among alternative assessment methods and are uncertain because: 1) it is unknown if catch-per-day-fished for purse-seine fisheries is proportional to abundance; 2) it is possible that there is a population of large skipjack that is invulnerable to the fisheries; and 3) the structure of the EPO stock in relation to the Western and Central Pacific stocks is still uncertain. There are also uncertainties in the estimates of natural mortality and growth. No traditional reference points are available for skipjack tuna in the EPO.

The average weight of EPO skipjack has declined to levels seen in the early 1980s and was below its lower reference level in 2015 and 2016 which can be a consequence of overexploitation, but it can also be caused by recent recruitments being greater than past recruitments or expansion of the fishery into areas occupied by smaller skipjack. The low levels are likely due to large recruitments in 2015 and 2016.

To evaluate current values of the indicators in comparison to historical values, reference levels were based on the 5th and 95th percentiles, as the distributions of the indicators are somewhat asymmetric. Eight data- and model-based indicators are shown (**Figure 1**):

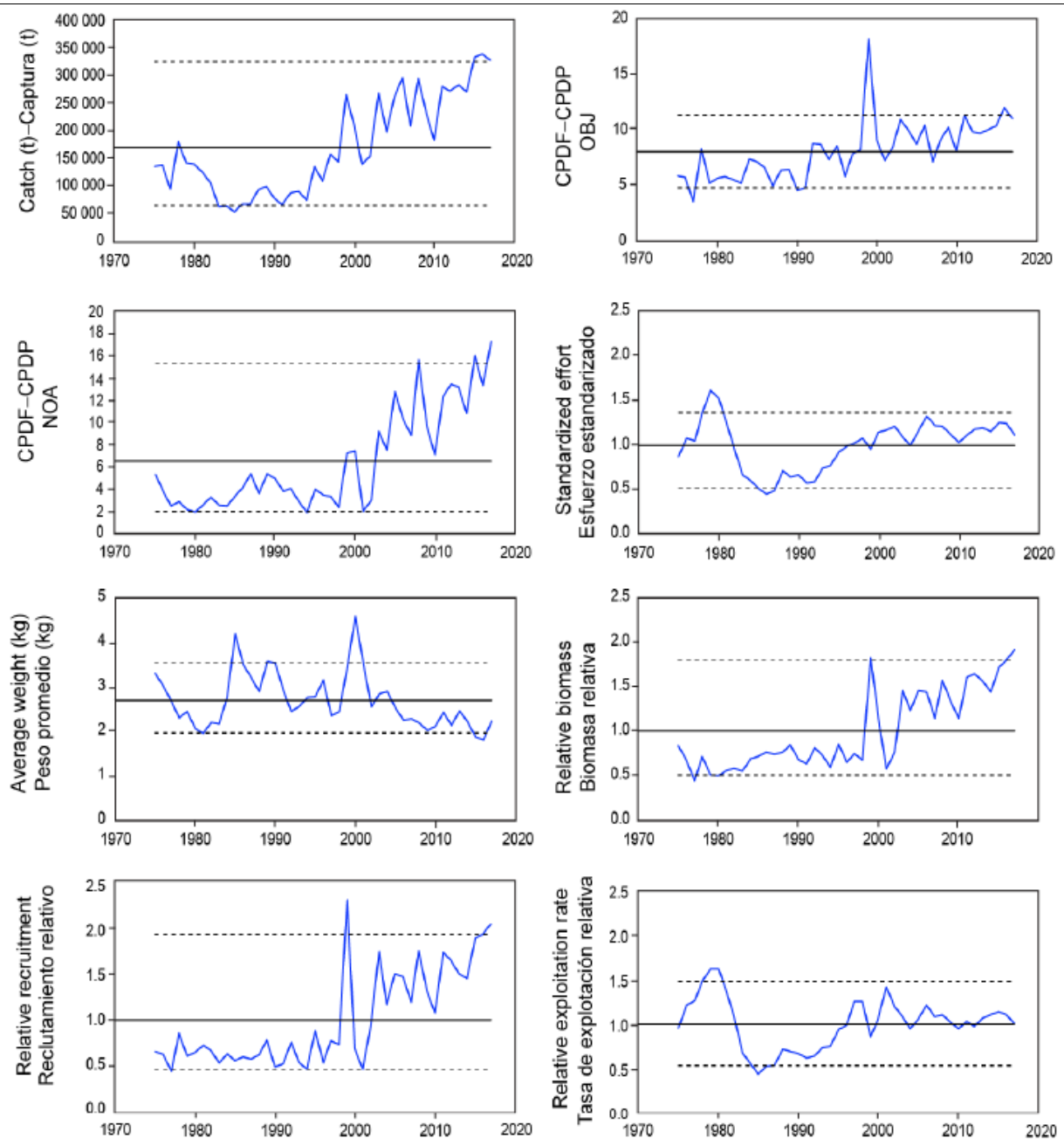

Figure 1: Indicators of stock status for skipjack tuna in the eastern Pacific Ocean. OBJ: floating-object fishery; NOA: unassociated fishery; CPDF: catch per day fished. All indicators are scaled so that their average equals one (R1)

The standardized effort, which is a measure of exploitation rate, is calculated as the sum of the effort, in days fished, for the floating-object (OBJ) and unassociated (NOA) fisheries. The floating-object effort is standardized to be equivalent to the unassociated effort by multiplying by the ratio of the average floating-object CPUE to the average unassociated CPUE.

The purse-seine catch started increasing substantially in the mid-1990s and has been above average since 2003; during 2015-2017 it was above the upper reference level. The floating-object CPUE has generally been above average since the early 1990s and was above the upper reference level in 2016. The unassociated CPUE has been increasing since the early 2000s; it has been above average since about 2003 and was above the upper reference level in 2017.

The data- and model-based indicators have yet to detect any adverse impacts of the fishery. The average weight was below its lower reference level in 2015 and 2016, which can be a consequence of overexploitation, but can also be caused by recent recruitments being greater than past recruitments or expansion of the fishery into areas occupied by smaller skipjack. Any continued decline in average length is a concern. Neither analyses of tagging data, nor various previous models indicate a credible risk to the skipjack stock(s)

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy) and passes Clause C1.2.

References

R1 Mark N. Maunder (2018) IATTC Stock Assessment Report No 19: Status of the tuna and billfish stocks in 2017: Updated indicators of stock status: pp 25-32
http://www.iattc.org/PDFFiles/StockAssessmentReports/_English/No-19-2018_Status%20of%20the%20tuna%20and%20billfish%20stocks%20in%202017.pdf

R2 Mark N. Maunder (2018) IATTC Stock Assessment Report No 18: Updated indicators of stock status for skipjack tuna in the Eastern Pacific Ocean pp 35-41
http://www.iattc.org/PDFFiles/StockAssessmentReports/_English/SAR-18-3-SKJ-assessment-2016.pdf

R3 Maunder and Deriso (2007) El uso de indicadores de condición de población cuando no se dispone de puntos de referencia tradicionales: evaluación y aplicación al atún barrilete en el Océano Pacífico oriental. Comisión Interamericana del Atún Tropical, Informe de Evaluación de Stocks, 8: 229-248.

R4 (Anon) (2017) IATTC Fisheries Status Report No 15: Tunas, Billfishes and other pelagic species in the Eastern Pacific Ocean pp 1-191
http://www.iattc.org/PDFFiles/FisheryStatusReports/_English/FisheryStatusReport15.pdf

R5 FAO Species Fact Sheets (Skipjack tuna)
http://www.fao.org/fishery/species/2494/en

R6 IUCN Red list: http://www.iucnredlist.org/search (accessed 20.05.19)

Standard clauses 1.3.2.2

SOCIAL CRITERION

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