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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**
Date	**December 2018**
Assessor	**Jim Daly**

Application details and summary of the assessment outcome				
Name: TCF Co. Ltd				
Address:				
Country: Thailand		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code**		
Key Contact:		**Title:**		
Certification Body Details				
Name of Certification Body:		**SAI Global**		
Assessor Name	**Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/Re-approval**	**Whole fish/ By-product**
Jim Daly	Virginia Polonio	0.5	Surveillance	By-product
Assessment Period	2018			

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
Gear Type(s)	Purse seine, pole and line, long line
Outcome of Assessment	
Overall Outcome	Pass
Clauses Failed	None
Peer Review Evaluation	Agree with Assessor's determination
Recommendation	Approval

Assessment Determination
Eastern Pacific Ocean (EPO) stock of skipjack tuna are managed by the Inter-American Tropical Tuna Commission. The Commission co-ordinate scientific research and stock assessment of the species within its remit. The stock is subject to a species-specific management regime and was assessed under clause C. As fishery removals of EPO skipjack tuna are included in the stock assessment process and the stock can be considered, in its most recent assessment, to have a biomass above its proxy limit reference point it passes clause C. Skipjack tuna is categorised as of least concern on IUCN's Red List of Threatened Species and is not listed on CITES (http://www.iucnredlist.org/details/170310/0, global assessment undertaken in 2010). (Websites accessed 10.12.18) Skipjack tuna in the EPO are recommended for approval as by-product under the IFFO RS Standard v 2.0 for the production of fishmeal and fish oil.
Peer Review Comments
Agree with Assessor's determination.
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]

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
Skipjack tuna	*Katsuwonus pelamis*	EPO	N/A	IATTC	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**

Evidence

This by-product assessment is of the Eastern Pacific Ocean (EPO) stock of skipjack tuna. The IATTC (2016) note that skipjack are distributed across the Pacific Ocean and it is likely that there is a continuous stock throughout the ocean but exchange of individuals is thought to occur at a local level and large-scale movements rare. Movements of tagged skipjack generally cover hundreds, rather than thousands, of kilometres, and exchange of fish between the eastern and western Pacific Ocean appears to be limited. The bulk of the catches are made in the eastern and western regions, purse-seine catches are relatively low in the vicinity of the western boundary of the EPO at 150°W.

Maunder (2018) provides a concise but comprehensive explanation of the difficulties associated with assessing stock status of EPO skipjack tuna. As a result of these difficulties, no traditional biomass or fishing mortality-based reference points are available. Maunder and Deriso (2007, cited in Maunder, 2016) 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. To evaluate the current values of the indicators in comparison to historical values, reference levels based on the 5th and 95th percentiles are used, as the distributions of the indicators are asymmetric.

The eight data- and model-based indicators are shown in **Figure 1**. Maunder (2018) notes that the main concern with the skipjack stock was the constantly increasing exploitation rate. However, he notes that this appears to have levelled off in recent years and the data- and model-based indicators have yet to detect any adverse consequence of this increase. He also notes that 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 and, combined with levelling off of catch and CPUE, may indicate that the exploitation rate is approaching, or above, the level associated with MSY. Neither analyses of tagging data, nor various previous models (length-structured, A-SCALA, and SEAPODYM) indicate a credible risk to the skipjack stock(s).

Maunder notes that productivity and susceptibility analysis (PSA; see IATTC Fishery Status Report 12, Figure L-4) shows that skipjack has substantially higher productivity than bigeye tuna. Biomass (B) and the fishing mortality that produces MSY (F_{MSY}) are, respectively, negatively and positively correlated with productivity.

Therefore, since skipjack and bigeye have about the same susceptibility, and susceptibility is related to fishing mortality, the status of skipjack can be inferred from the status of bigeye. The current assessment of bigeye estimates that the fishing mortality is less than F_{MSY}; therefore, the fishing mortality for skipjack should also be less than F_{MSY}. Since effort and skipjack biomass have been relatively constant over the past 10 years, this also implies that skipjack biomass is above the level that would produce MSY (B_{MSY}).

Data from the IATTC 2018 assessment have confirmed (Maunder 2018) that data- and model-based indicators used have yet to detect any adverse impacts of the fishery.

As fishery removals of EPO skipjack tuna are included in the stock assessment process and the stock can be considered, in its most recent assessment, to have a biomass above its proxy limit reference point it passes clause C.

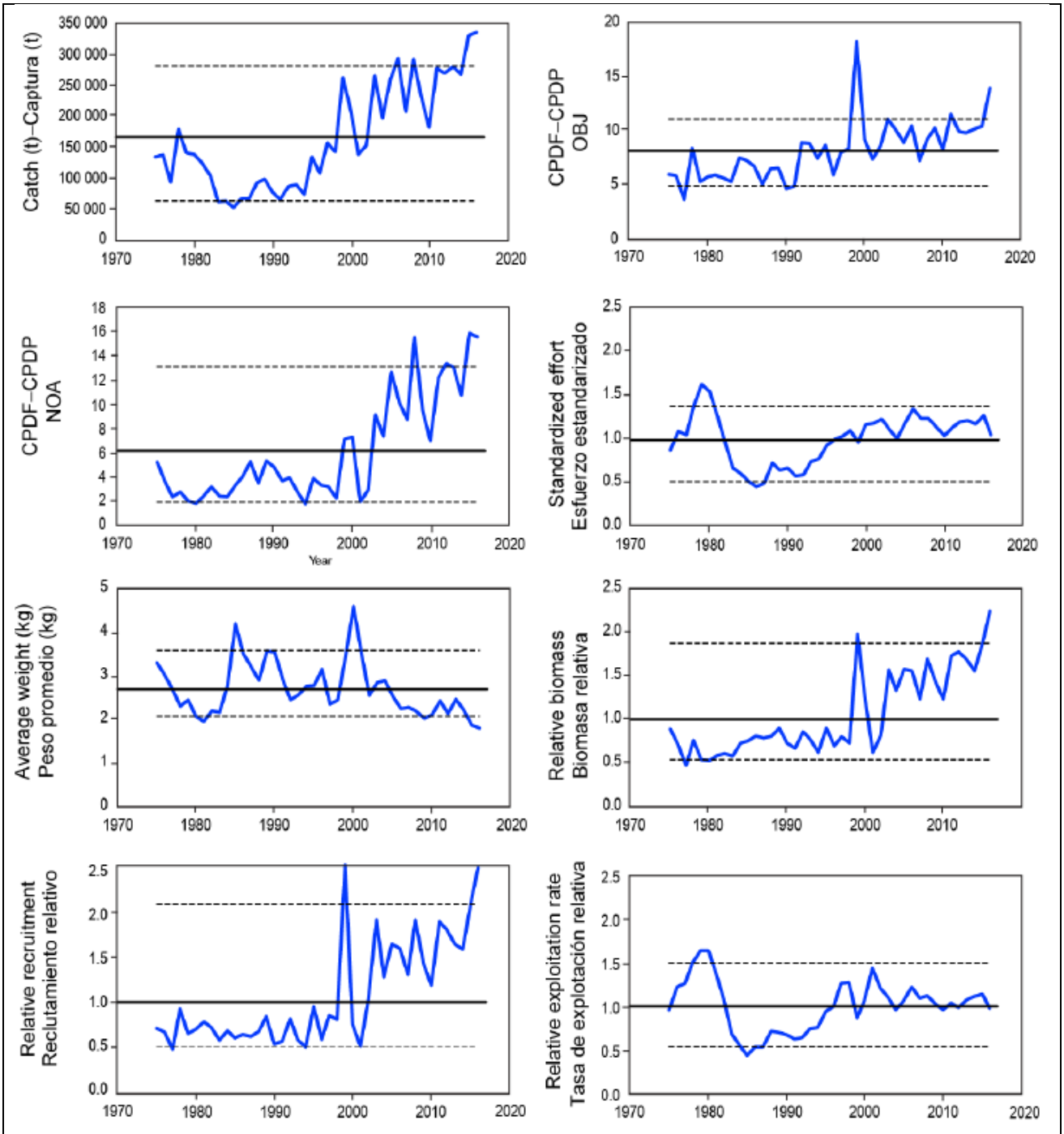

Figure 1. Indicators of stock status for skipjack tuna in the eastern Pacific Ocean. OBJ: floating-object fishery; NOA: un-associated fishery; CPDF: catch per day fished. All indicators are scaled so that their average equals one. Source: Maunder, 2018 **R2**

References

R1: IATTC, 2016. Fishery Status Report. Tunas, billfishes and other pelagic species in the Eastern Pacific Ocean in 2016. https://www.iattc.org/PDFFiles/FisheryStatusReports/_English/FisheryStatusReport15.pdf

R2: Maunder, 2018: IATTC Updated indicators of stock status for skipjack tuna in the Eastern Pacific Ocean (2018): https://www.iattc.org/Meetings/Meetings2018/SAC-09/PDFs/Docs/_English/SAC-09-07-EN-REV-23-Apr-18_Skipjack-tuna-indicators-of-stock-status.pdf 4pp

R3: IUCN Red List of Threatened Species http://oldredlist.iucnredlist.org/search

R4: CITES Checklist of endangered species http://checklist.cites.org/#/en
Standard clauses 1.3.2.2