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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Albacore tuna (*Thunnus alalunga*) FAO 51, 57**
Date	**July 2019**
Assessor	**V. Polonio**

Application details and summary of the assessment outcome				
Name: TC Union Agrotech Co Ltd and others				
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	**Pier Reviewer**	**Assessment Days**	**Initial/Surveillance/Re-approval**	**Whole fish/ By-product**
Jim Daly	V.Polonio	0.5	Surveillance 2	By-product
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	IOTC
Main Species	Albacore tuna (*Thunnus alalunga*)
Fishery Location	FAO 51,57 (Indian Ocean)
Gear Type(s)	Longline, pole and line, purse seine, troll
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	Approve
Recommendation	PASS

Assessment Determination

Management:

Legal and administrative frameworks exist at the national level, in addition to research and management frameworks implemented at the international level by the Indian Ocean Tuna Commission (IOTC). An evaluation of Management Procedures (MPs) for albacore tuna is being carried out. The analysis attempts to simulation-test a full MP, consisting of data collection, an agreed evaluation of stock status, and a decision rule. A base case Operating Model (OM) for albacore is being developed by the Working Party on Methods (WPM) with input from the Indian Ocean Tuna Commission's (IOTC) Working Party on Temperate Tuna (WPTmT).

The stock status (Indian Ocean albacore) is determined on the basis of the 2016 assessment and other indicators presented in 2018. No new stock assessment was carried out in 2018. Although considerable uncertainty remains in the assessment model used, particularly due to the lack of biological information on the albacore stock, a precautionary approach to the management of the stock is advised by IOTC; capping total catch to MSY levels.

Sustainable Indian Ocean Tuna Initiative: (SIOTI)

SIOTI, a Fishery Improvement Project (FIP) has been jointly established by key governments in the region; major tuna processors; producer organisations and their vessels, with the support of WWF. While at this time albacore is not considered in the FIP as a target species one of the performance indicators measured (FIP website accessed 15.07.19) is to collect catch data on primary, secondary and ETP species, including albacore tuna.

Support has been provided for data gathering programmes, observer training and harmonisation on data management. Annual by-catch monitoring (including albacore) procedures are already in place. A review by the FIP audit committee (July 2019) of actions undertaken to address this performance indicator concluded that the FIP team are on track to complete this performance indicator by March 2021. Fishery removals of the species in the fishery under assessment are included in the stock assessment process.

Two primary sources of data drive the assessment, total catches and CPUE. A range of quantitative modelling methods were applied to the 2016 assessment, ranging from the highly aggregated ASPIC surplus production model to the age-, sex and spatially-structured SS3 analysis. Management advice is that the stock status in relation to the IOTC's B_{MSY} and F_{MSY} target reference points indicates that the stock is not overfished and not subject to overfishing. The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy).

The IUCN have listed albacore tuna (global stock) as near threatened; the species does not appear in the CITES appendices (both sites accessed 09.07.19).

The assessment team recommends the approval of albacore tuna from the Indian Ocean fishery as by-product species under the current IIFO RS Standard (By-product) v 2.0.

Peer Review Comments

PR has some doubts regarding the compliance with the clause C1.1. In the last assessment from 2016 it was stated that there are some uncertainties in collecting data. Piracy in the western Indian Ocean has resulted in additional fishing pressure in traditional albacore fishing areas and it is still an issue in the area. There is uncertainty surrounding total catch records and abundance indices used in the assessment. Specifically, Indonesia and Malaysia have provided in

complete data sets and catch and effort data from other countries is either uncertain (longline-India, Indonesia, Oman, Philippines and Malaysia) or missing (fresh-tuna longliners Taiwan). In addition, there are issues with non-reporting of catch by industrial longliners and catch and effort by industrial purse seine vessels. Observer coverage rates are very low.
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	
M2 - Surveillance, Control and Enforcement	
F1 - Impacts on ETP Species	
F2 - Impacts on Habitats	
F3 - Ecosystem Impacts	

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C	Albacore tuna (*Thunnus alalunga*)	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
Albacore tuna	*Thunnus alalunga*	Indian Ocean	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		Albacore tuna (*Thunnus alalunga*)	
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

Clause C1.1:

Indian Ocean Tuna Commission:

The Indian Ocean Tuna Commission (IOTC) is an intergovernmental organisation responsible for the management of tuna and tuna-like species in the Indian Ocean. The Commission has four key functions and responsibilities which enable it to achieve its objectives. They are drawn from the United Nations Convention on the Law of the Sea (UNCLOS), and include adopting, on the basis of scientific evidence, Conservation and Management Measures (CMMs) to ensure the conservation of stocks and to promote their 'optimum utilisation' throughout the IOTC Area of Competence. The majority of albacore catches in the region are attributed to vessels flagged to distant water fishing nations (i.e., Taiwan, China and Japan), followed by coastal countries such as Indonesia and Malaysia.

Prior to 1980 there was 20 years of moderate fishing, after which total catches of albacore tuna in the Indian Ocean more than doubled in subsequent years (Figure 1 Anon 2018):

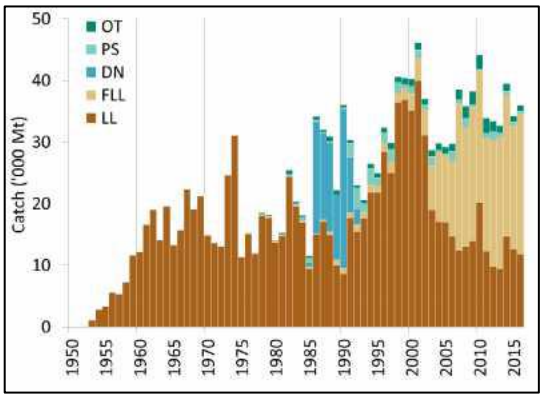

Figure 1. Albacore: Catches of albacore by gear (1950-2016)
Driftnet (DN; Freezing-longline (LL); Fresh-tuna longline (FLL); Purse seine (PS); Other gears nei (**OT**).

ICES recommend that the two primary sources of data that drive the assessment, total catches and CPUE, are highly uncertain and should be developed further as a priority.

Sustainable Indian Ocean Tuna Initiative: (SIOTI)

SIOTI has been jointly established by key governments in the region; major tuna processors; producer organisations and their vessels, with the support of WWF. The goal of this Fishery Improvement Project (FIP) is to support improvement in the management of tuna fisheries in the Indian Ocean with the ultimate aim of achieving MSC certification.

Currently the FIP target species are skipjack, bigeye and yellowfin tuna. However one of the performance indicators measured (FIP website accessed 15.07.19) is to collect catch data on primary, secondary and ETP

species, including albacore tuna. Support has been provided by FIP team for data gathering programmes, observer training and harmonisation on data management. Annual by-catch monitoring (including albacore) procedures are in place. This action was reviewed in 2019 by the FIP audit committee and was found to be on track.

Actions underway as part of this FIP should improve the quality of data on removals of albacore from the fishery in the assessment area.

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

Clause C1.2:
Species-Specific Stock Assessment:

A range of quantitative modelling methods (BBDM, BSPM, ASPIC, SCAA, and SS3) were applied to the 2016 assessment, ranging from the highly aggregated ASPIC surplus production model to the age-, sex and Spatially-structured SS3 analysis.

The species was evaluated in 2016; the next stock assessment should be carried out in 2019. No new stock assessment was carried out for albacore in 2018, thus stock status is determined on the basis of the 2016 assessment and other indicators presented in 2018: **Table 1 and Figure 3 (Anon 2018).**

Status of the Indian Ocean albacore (ALB: *Thunnus alalunga*) resource

TABLE 1. Albacore: Status of albacore (*Thunnus alalunga*) in the Indian Ocean.

Area[1]	Indicators – 2016 assessment		2018 stock status[3] determination
Indian Ocean		SS3	
	Catch 2017[2]:	38,347 t	
	Average catch 2013–2017:	36,004 t	
	MSY (1000 t) (80% CI):	38.8 (33.9–43.6)	
	F_{MSY} (80% CI):	0.07 (–)	
	SB_{MSY} (1000 t) (80% CI):	30.0 (26.1–34.0)	
	F_{2014}/F_{MSY} (80% CI):	0.85 (0.57–1.12)	
	SB_{2014}/SB_{MSY} (80% CI):	1.80 (1.38–2.23)	
	SB_{2014}/SB_{1950} (80% CI):	0.37 (0.28–0.46)	

[1] Boundaries for the Indian Ocean stock assessment are defined as the IOTC area of competence.
[2] Proportion of catch estimated or partially estimated by IOTC Secretariat in 2017: 17%
[3] The stock status refers to the most recent years' data used in the last assessment conducted in 2016.

Colour key	Stock overfished($SB_{year}/SB_{MSY}< 1$)	Stock not overfished ($SB_{year}/SB_{MSY}\geq 1$)
Stock subject to overfishing($F_{year}/F_{MSY}> 1$)		
Stock not subject to overfishing ($F_{year}/F_{MSY}\leq 1$)		

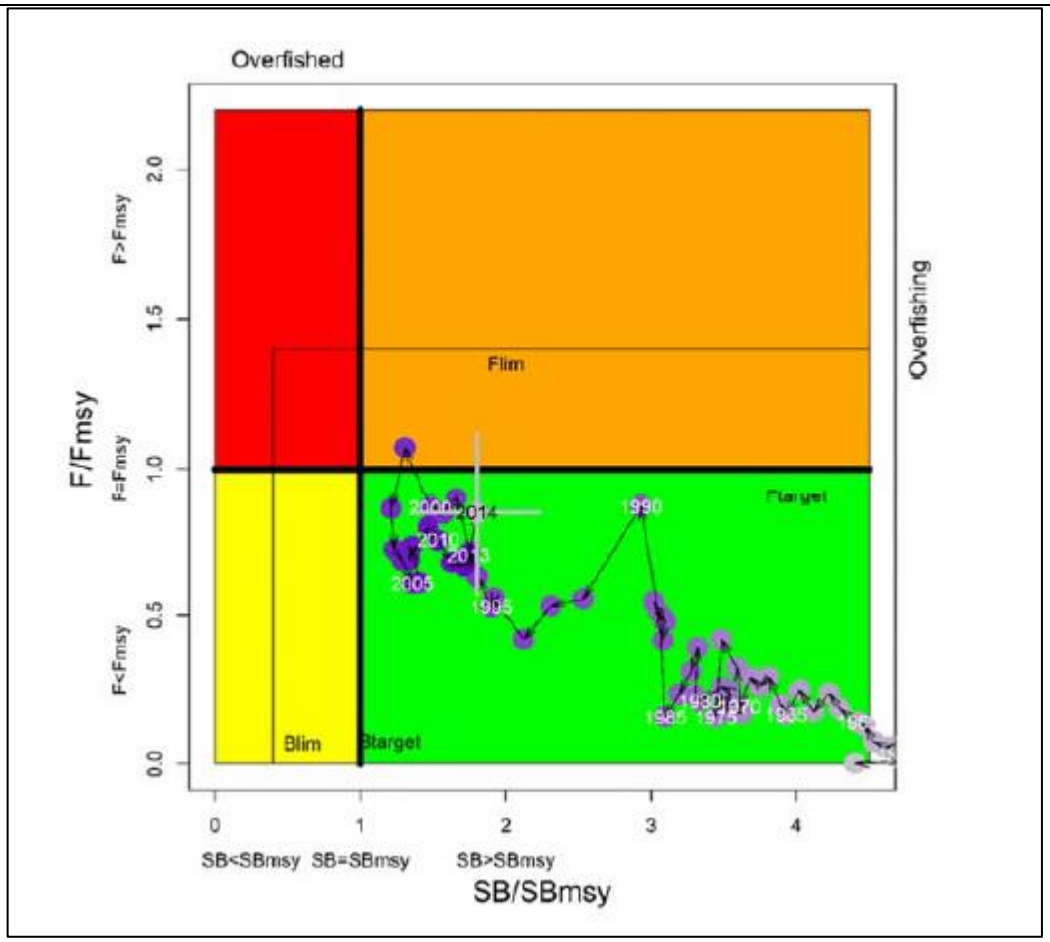

Figure 3: Albacore: SS3 Aggregated Indian Ocean assessment Kobe plot. Blue circles indicate the trajectory of the point estimates for the SB ratio and F ratio for each year 1950–2014 (the grey lines represent the 80 percentiles of the 2014 estimate). Target (Ftarg and SBtarg) and limit (Flim and SBlim) reference points are shown. (**Anon, 2018**).

Summary:
Catches in 2017 were marginally below the MSY level of the model in use. Fishing mortality represented as F2014/FMSY is 0.85 (0.57‑1.12). Biomass is considered to be above the SBMSY level (SB2014/SBMSY = 1.80 (1.38‑2.23)) from the SS3 model. Results from other model options were also generally consistent with these estimates of stock status. Thus, the stock status in relation to the Commission's BMSY and FMSY target reference points indicates that the stock is **not overfished** and **not subject to overfishing.**

An evaluation of Management Procedures (MPs) for albacore tuna is being carried out. The analysis attempts to simulation-test a full MP, consisting of data collection, an agreed evaluation of stock status, and a decision rule. A base case Operating Model (OM) for albacore is being developed by the Working Party on Methods (WPM) with input from the Working Party on Temperate Tuna (WPTmT). The current base case has yet to be fully reviewed by either WP.

References

- Anon (2018) IOTC Report: Status of the Indian Ocean albacore (ALB: *Thunnus alalunga*) resource, Executive Summary 3pp https://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Albacore2018.pdf

- Anon (217) IOTC Report: Albacore Supporting Information (Working Party on Temperate Tunas and other sources as cited) 13pp http://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Albacore_Supporting_information.pdf
- Anon (2017) IOTC Report: Management Strategy Evaluation for the Indian Ocean Albacore Tuna Stock 19pp http://www.iotc.org/sites/default/files/documents/2017/10/IOTC-2017-WPM08-13.pdf
- R Methot & C Wetzel (2013): Stock synthesis: A biological and statistical framework for fish stock assessment and fishery management Fisheries Research Vol 142 pp 86-99 https://www.afsc.noaa.gov/program_reviews/2014/background_materials/Methot%20and%20Wetzel%202013.pdf
- Anon FAO country fisheries overview, Thailand: http://www.fao.org/fishery/facp/THA/en
- Thailand Department of Fisheries Management Plan (FMP): https://fisheries-refugia.org/downloads/inception-workshop/docs/21-21-fr-inception-workshop-marine-fisheries-management-plan-thailand/file
- CITES Species Endangered list: http://checklist.cites.org/#/en accessed 12.07.19
  IUCN Red list: http://www.iucnredlist.org/search accessed 12.07.19
- Fishery Progress.org Sustainable Indian Ocean Tuna Initiative (SIOTI): https://fisheryprogress.org/node/4711/actions-progress

Standard clauses 1.3.2.2