

IFFO RS Global Standard for Responsible Supply of Marine Ingredients

IFFO RS Limited

T: +44 (0) 2030 539 195 E: Standards@iffors.com W: www.iffors.com

Unit C, Printworks | 22 Amelia Street London, SE17 3BZ | United Kingdom





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	Albacore tuna (<i>Thunnus alalunga</i>) FAO 61, 71 North Pacific Stock
Date	July 2019
Assessor	Jim Daly

Application details and summary of the assessment outcome						
Name: T.C. Union Ag	Name: T.C. Union Agrotech Co. Ltd and others					
Address:						
Country: Thailand		Zip:				
Tel. No.:		Fax. No.:				
Email address:		Applicant Code				
Key Contact:		Title:				
Certification Body De	etails	- -				
Name of Certification	ı Body:	SAI Global Ltd				
Assessor Name	Peer Reviewer	Assessment Days	Initial/Surveillance approval	/Re- Whole fish/ By- product		
Jim Daly	Virginia Polonio	0.5	SURV 2	By-product		
Assessment Period	2018	· · · · · ·				

Scope Details	
Management Authority (Country/State)	WCPFC, Thailand
Main Species	Albacore tuna (Thunnus alalunga)
Fishery Location	FAO 61, 71 (Pacific Ocean)
Gear Type(s)	Longline, pole and line, purse seine, troll
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	PASS
Recommendation	APPROVE

Assessment Determination

Albacore's range spans multiple Regional Fishery Management Organizations (RFMOs); Western and Central Pacific Fisheries Commission (WCPFC) and the Inter-American Tropical Tuna Commission (IATTC)). Convention texts from these two RFMO's calls for cooperation in the management of albacore throughout its migratory range.

Legal and administrative frameworks exist at the Thai national level, in addition to the research and management frameworks implemented at the international level by tuna RFMOs. Following the latest stock assessment carried by the Scientific Committee (SC) of the Western and Central Pacific Fisheries Commission (WCPFC, 2017) the status of the stock in the North Pacific (FAO 61, 71) was not deemed to be overfished.

No stock assessments were conducted in 2018; stock status descriptions from SC13 (2017) are still current for North Pacific albacore. Updated information on catches was not compiled for and reviewed by SC14 (July 2018).

All available fishery data from this area were used for the stock assessment, assuming that there is instantaneous mixing of albacore on a quarterly basis, i.e., a single well-mixed stock. All catch and size composition data from International Scientific Committee (ISC) member countries (Canada, China, Chinese Taipei, Japan, Korea, and USA) and non-member countries were compiled for the assessment. Fishery removals of the species in the fishery under assessment are included in the stock assessment process.

Stock status is depicted in relation to the limit reference point (LRP; 20% SSBcurrent, F=0) for the stock and the equivalent fishing intensity (F20%; calculated as 1- SPR20%) (Fig. NPALB-1). Fishing intensity (F, calculated as 1-SPR) is a measure of fishing mortality expressed as the decline in the proportion of the spawning biomass produced by each recruit relative to the unfished state. Although considerable uncertainty remains in the model, particularly due to the lack of biological information of female sizes on North Pacific albacore tuna stock, the stock was determined to be above the SSB reference point.

The global stock of albacore tuna has been described as near threatened (IUCN website, accessed 16.07.19); the species is not on the current list of CITES endangered species (accessed 16.07.19).

Within part of the assessment area (FAO 71) there are a number of albacore fisheries either currently certified or under assessment in order to achieve the MSC Fisheries Certification.

The assessment team recommends maintaining approval of this by-product material.

Peer Review Comments

However there are some gap of information, as stated in the last report of WCPFC, data reporting from some countries (China and South Korea highlighted during 2011 assessment), specifically with regard to effort data, need to be improved. Further, the last assessment noted that additional information on sex-specific size data, updated estimates on maturity and natural mortality rates and spatial analysis, could potentially improve assessment results. However, PR agrees with the main conclusions and recommends the approval of this by-product.

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)
			A1
Cotto a serie A			A2
Category A			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	North Pacific		Thailand	С

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.

Spec	ies N	ame	Albacore tuna Thunnus alalunga				
C1 Category C Stock Status - Minimum Requirements							
	C1.1	C1.1 Fishery removals of the species in the fishery under assessment are included in the					
		stock assess	ment process, OR are considered by scientific authorities to be negligible.				
	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.							
Clause outcome: P							

Evidence

C1.1:

All available fishery data from this area were used for the stock assessment, assuming that there is instantaneous mixing of albacore on a quarterly basis, i.e., a single well-mixed stock. In the 2017 stock assessment a new procedure was used to standardize the Japanese longline abundance index;

This new index had good contrast and, based on the Age-Structured Production Model (ASPM) diagnostic analyses, was informative on both population trend and scale; the start year of the base case model was changed from 1966 (in 2014) to 1993 (in 2017). This change eliminated the influence of poorly fit size composition data from the Japanese longline fleets in 1975 – 1992 and finally in previous assessments, the instantaneous rate of natural mortality (M) was assumed to be 0.3 y-1 for both sexes at all ages. The basis for this assumption was reviewed and found to be poorly supported. Sex-specific M-at-age vectors were developed from a meta-analysis, with a sex-combined M that scaled with size for ages 0-2, and sex-specific M fixed at 0.39 and 0.48 y-1 for age-3+ males and females, respectively.

During the modelling period (1993-2015), the total reported catch of north Pacific albacore reached a peak of 119,300 t in 1999 and then declined in the early 2000s, followed by a recovery in later years with catches fluctuating between 68,900 and 93,100 t in recent years (2010-2015). Surface gears (troll, pole-and-line) have accounted for approximately twice as much albacore catch as longline gear.

All north Pacific albacore catch and size composition data from International Scientific Committee (ISC) member countries (Canada, China, Chinese Taipei, Japan, Korea, and USA) and non-member countries were compiled for the assessment.

Fishery removals of the species in the fishery under assessment are included in the stock assessment process.

C1.2: 2017 WCPFC SC Assessment Species-specific Management:

The latest stock assessment (North Pacific albacore) was conducted in 2017. An overview of the stock status has been provided by the Scientific Committee (Report No SC13-SA-WP-09); recommendations by the Albacore Working Group (Report ALBWG 2017).

The stock was assessed (2017) using a length-based, age-, and sex-structured Stock Synthesis (SS Version 3.24AB) model over the 1993-2015 period. Sex-specific growth curves from the 2014 assessment were used because of evidence of sexually dimorphic growth, with adult males attaining a larger size-at-age than females after maturity. Sex-specific M-at-age vectors were developed from a meta-analysis, with a sex-combined M that scaled with size for ages 0-2, and sex-specific M fixed at 0.48 and 0.39 y-1 for age-3+ females and males, respectively.

An age-structured production model diagnostic analysis, showed that the estimated catch-at-age and fixed productivity parameters (growth, mortality and stock-recruitment relationship without annual recruitment deviates) were able to explain trends in the S1 index. Based on these findings, the Working Group concluded that the base case model was able to estimate stock production function and the effect of fishing on the abundance of the north Pacific albacore stock.

Stock status is depicted in relation to a limit reference point (LRP; 20% SSB current, F=0 for the stock) and equivalent fishing intensity (F20%; calculated as 1-SPR20%). Fishing intensity is a measure of fishing mortality expressed as the decline in the proportion of the spawning biomass (SSB) produced by each recruit relative to the unfished state. A fishing intensity of 0.8 will result in a SSB of approximately 20% of SSB0 over the long run. Fishing intensity is considered a proxy of fishing mortality. Fishery removals of the species in the fishery under assessment are included in the stock assessment process.

The Kobe plot (Figure 1) shows that the estimated female SSB has never fallen below the LRP since 1993, albeit with large uncertainty in the terminal year (2015) estimates:



Figure 1: Kobe plot showing the status of the north Pacific albacore (*Thunnus alalunga*) stock relative to the 20% SSBcurrent, F=0 biomass-based limit reference point, and equivalent fishing intensity (F20%; calculated as 1-SPR20%) over the base case modelling period (1993-2015). Blue triangle indicates the start year (1993) and black circle with 95% confidence intervals indicates the terminal year (2015). (B) Kobe plot showing stock status and 95% confidence intervals in the terminal year (2015) of the base case model (black; closed circle) and important sensitivity runs with M = 0.3 y⁻¹ for both sexes (blue; open square), and CV = 0.06 for L*inf* in the growth model (white; open triangle). Fs in this figure are not based on instantaneous fishing mortality. Instead, the Fs are indicators of fishing intensity based on SPR and calculated as 1-SPR so that the Fs reflects changes in fishing mortality. **R3**

The Kobe plot shows that the estimated female SSB has never fallen below the LRP since 1993, albeit with large uncertainty in the terminal year (2015) estimates. Even when alternative hypotheses about key model uncertainties such as natural mortality and growth were evaluated, the point estimate of female SSB in 2015 (SSB2015) did not fall below the LRP, although the risk increases with these more extreme assumptions. SSB2015 was estimated to be 80,618 t and was 2.47 times greater than the LRP threshold of 32,614 t.

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

References

R1 Fishsource: Albacore North Pacific: <u>https://www.fishsource.org/stock_page/639</u>

R2 WCPFC (2018) North Pacific Albacore Tuna: https://www.wcpfc.int/doc/05/north-pacific-albacore-tuna

R3 WCPFC Scientific Committee (July 2017) Report No. SC13-SA-WP-09 Stock Assessment of Albacore in the North Pacific Ocean in 2017 Rev 2(approved version) 4pp <u>https://www.wcpfc.int/doc/05/north-pacific-albacore-tuna</u>

Standard clauses 1.3.2.2

CATEGORY D SPECIES

In a whole fish assessment, Category D species are those which make up less than 5% of landings and are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. In a by-product assessment, Category D species are those which are not subject to a species-specific management regime. In both cases, the comparative lack of scientific information on the status of the population of the species means that a risk-assessment style approach must be taken.

The process for assessing Category D species involves the use of a Productivity-Susceptibility Analysis (PSA) to further subdivide the species into 'Critical Risk', 'Major Risk' and 'Minor Risk' groups. If there are no Category D species in the fishery under assessment, this section can be deleted.

Productivity and susceptibility ratings are calculated using a process derived from the APFIC document "Regional Guidelines for the Management of Tropical Trawl Fisheries, which in turn was derived from papers by Patrick *et al* (2009) and Hobday *et al* (2007). Table D1 should be completed for each Category D species as follows:

- Firstly, the best available information should be used to fill in values for each productivity and susceptibility attribute.
- Table D2 should be used to convert each attribute value into a score between 1 and 3.
- The average score for productivity attributes and the average for susceptibility attributes should be calculated.

- Table D3 should be used to determine whether the species is required to meet the requirements of Table D4. A species which does not need to meet the requirements of D4 is automatically awarded a pass.
- Table D4 should be used to assess those species indicated by Table D3 to determine a pass/fail rating.
- Any Category D species which has been categorised by the IUCN Red List as Endangered or Critically Endangered, or which appears in the CITES appendices, automatically results in a fail.

D1	Species Name:						
	Productivity Attribute	Value	Score				
	Average age at maturity (years)						
	Average maximum age (years)						
	Fecundity (eggs/spawning)						
	Average maximum size (cm)						
	Average size at maturity (cm)						
	Reproductive strategy						
	Mean trophic level						
		Average Productivity Score					
	Susceptibility Attribute	Value	Score				
	Overlap of adult species range with fishery						
	Distribution						
	Habitat						
	Depth range						
	Selectivity						
	Post-capture mortality						
	Average Susceptibility Score						
		PSA Risk Rating (From Table D3)					
		Compliance rating					
Refer	ences						
Stand	ard clauses 1 3 2 2						

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	Low productivity/ High risk	Medium productivity/ Medium risk	High productivity/ Low risk	
	Score 3	Score 2	Score 1	
Average age at maturity (years)	>4	2 to 4	<2	
Average maximum age (years)	>30	10 to 30	<10	
Fecundity (eggs/spawning)	<1 000	1 000 to 10 000	>10 000	
Average maximum size (cm)	>150	60 to 150	<60	
Average size at maturity (cm)	>150	30 to 150	<30	
Reproductive strategy	Live bearer, mouth brooder or significant parental investment	Demersal spawner "berried"	Broadcast spawner	
Mean trophic level	>3.25	2.5-3.25	<2.5	

Susceptibility attributes		High susceptibility/ High risk	Medium susceptibility/ Medium risk	Low susceptibility/ Low risk	
		Score 3	Score 2	Score 1	
Availability 1) Overlap of adult species range with fishery		>50% of stock occurs in the area fished	Between 25% and 50% of the stock occurs in the area fished	<25% of stock occurs in the area fished	
	2)	Distribution	Only in the country/ fishery	Limited range in the region	Throughout region/ global distribution
Encounterability	1)	Habitat	Habitat preference of species make it highly likely to encounter trawl gear (e.g. demersal, muddy/sandy bottom)	Habitat preference of species make it moderately likely to encounter trawl gear (e.g. rocky bottom/reefs)	Depth or distribution of species make it unlikely to encounter trawl gear (e.g. epi-pelagic or meso-pelagic)
	2)	Depth range	High overlap with trawl fishing gear (20 to 60 m depth)	Medium overlap with trawl fishing gear (10 to 20 m depth)	Low overlap with trawl fishing gear (0 to 10 m, >70 m depth)
Selectivity			Species >2 times mesh size or up to 4 m length	Species 1 to 2 times mesh size or 4 to 5 m length	Species <mesh or<br="" size="">>5 m length</mesh>
Post capture mortality			Most dead or retained Trawl tow >3 hours	Alive after net hauled Trawl tow 0.5 to 3 hours	Released alive Trawl tow <0.5 hours

Note: Availability 2 is only used when there is no information for Availability 1; the most conservative score between Encounterability 1 and 2 is used.

D2		Average Susceptibility Score			
DS		1.00 - 1.75	1.76 - 2.24	2.25 - 3.00	
Average Productivit	1.00 – 1.75	PASS	PASS	PASS	
Score	1.76 - 2.24	PASS	PASS	TABLE D4	
	2.25 - 3.00	PASS	TABLE D4	TABLE D4	

D4	Spee	cies Name					
	Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements						
	D4.1 The potential impacts of the fishery on this species are considered during the						
	D (A	management process	, and reasonable measures are taken to minimise these impacts.				
	D4.2	There is no substanti	al evidence that the fishery has a significant negative impact on				
		the species.					
			Outcome:				
Evide	Evidence						
Refer	ences						
Standa	ard clau	use 1.3.2.2					