



RESPONSIBLE  
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**IFFO RS**  
Global Standard for Responsible Supply  
of Marine Ingredients

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# Global Standard for Responsible Supply of Marine Ingredients Fishery Assessment Methodology and Template Report V2.0



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<b>Fishery Under Assessment</b>	<b>Bonito/Kawakawa <i>Euthynnus affinis</i></b>
<b>Date</b>	<b>August 2019</b>
<b>Assessor</b>	<b>Jim Daly</b>

Application details and summary of the assessment outcome				
Name: TCF 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 Ltd		
Assessor Name	Peer Reviewer	Assessment Days	Initial/Surveillance/Re-approval	Whole fish/ By-product
Jim Daly	Vito Romito	0.5	Re-approval	By-product
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	Indian Ocean Tuna Commission (IOTC) and Southeast Asian Fisheries Development Centre (SEAFDEC); Signatory countries Southeast
Main Species	Bonito <i>Euthynnus affinis</i> (Mackerel Tuna)
Fishery Location	FAO Fishing Areas 57, 71
Gear Type(s)	Purse seine, gillnets, hand lines and trolling
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	PASS
Recommendation	APPROVE

### Assessment Determination

Management is co-ordinated at an international level through the RFMO, the Indian Ocean Tuna Commission (IOTC, FAO 57) and the regional fishery body where the Client is based: South East Asian Fisheries Development Centre (SEAFDEC FAO 71).

SEAFDEC have developed a Regional Plan Of Action (RPOA) in their area for the sustainable utilisation of neritic tunas including Kawakawa. Data on stocks and catch rates appears poor but latest information suggests Pacific Ocean (FAO 71) catch rates are below that required to achieve MSY. Under RPOA-Neritic Tunas advice has been provided on setting TACs to achieve MSY. There is considerable uncertainty about stock structure and the estimate of total catches in FAO 71.

Stocks in the Indian Ocean FAO 57 are at risk of falling below or are below MSY; catch rates exceed that required to achieve MSY. IOTC recommend that further analysis of CPUE data should be undertaken in preparation for the next stock assessment so that more traditional approaches for assessing stock status may be used.

A stock assessment (IOTC) was not undertaken for Kawakawa in 2017; the status (FAO 57) is determined on the basis of the 2015 assessment, which used catch data from 1950 to 2013. There is considerable uncertainty about stock structure and the estimate of total catches. Only data poor assessments can currently be used (FAO 57). Catches between 2014 and 2017 are lower than those estimated in 2013. Based on the weight-of-evidence available, the kawakawa stock for the Indian Ocean is classified as not overfished and not subject to overfishing (R1).

The comparative lack of scientific information on the status of the population in the assessment area means that a risk-assessment style approach must be taken. The fishery was assessed using the risk-based Productivity, Susceptibility Analysis (PSA) as per IFFO-RS v 2.0 procedures for Category D species. The species has passed this risk-based assessment (Table D1).

The species is classed as of 'least concern' by IUCN (accessed 26.08.19).

Research emphasis on collating catch per unit effort (CPUE) time series for the main fleets, size compositions and life trait history parameters (e.g. estimates of growth, natural mortality, maturity, etc.) should be considered a high priority for SEAFDEC in support of their next stock assessment.

In the opinion of the assessment team the potential impacts of the fishery on Kawakawa stock are considered during the management process and reasonable measures taken to minimise impacts.

There is no substantial evidence the fishery has a significant negative impact on the stock in the assessment area at present; the assessment team recommends approving this by-product material against the IFFO RS standard v 2.0.

### Peer Review Comments

Management of Kawakawa/Bonito is co-ordinated at an international level through the RFMO, the Indian Ocean Tuna Commission (IOTC) and the regional fishery body where the Client is based: South East Asian Fisheries Development Centre (SEAFDEC).

The Peer Reviewer agrees with the recommendation to approve this by-product material against the IFFO RS standard v 2.0.

### 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)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C				
Category D	Kawakawa <i>Euthynnus affinis</i>		<b>PASS</b>	

[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
Kawakawa	<i>Euthynnus affinis</i>	FAO 57,71	N/A	IOTC SEAFDEC	D

## 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.



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 size or >5 m length
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.

D3		Average Susceptibility Score		
		1.00 – 1.75	1.76 – 2.24	2.25 – 3.00
Average Productivity Score	1.00 – 1.75	PASS	PASS	PASS
	1.76 – 2.24	PASS	PASS	TABLE D4
	2.25 – 3.00	PASS	TABLE D4	TABLE D4



<b>D1</b>	<b>Species Name:</b>	<b>Kawakawa/Bonito <i>Euthynnus affinis</i></b>	
	<b>Productivity Attribute</b>	<b>Value</b>	<b>Score</b>
	Average age at maturity (years)	2	2
	Average maximum age (years)	6	1
	Fecundity (eggs/spawning)	210,000 - 680,000	3
	Average maximum size (cm)	100 Fork Length (FL)	2
	Average size at maturity (cm)	43	2
	Reproductive strategy	Open water / substratum egg scatterers	1
	Mean trophic level	4.5	3
	<b>Average Productivity Score</b>		<b>2.0</b>
	<b>Susceptibility Attribute</b>	<b>Value</b>	<b>Score</b>
	Overlap of adult species range with fishery	No information	-
	Distribution	Throughout region / global distribution	1
	Habitat	Epi-pelagic in neritic waters	Not used
	Depth range	0-200m	1
	Selectivity	Mesh size 2.5-9cm (purse seine)	3
	Post-capture mortality	Retained	2
	<b>Average Susceptibility Score</b>		<b>1.75</b>
	<b>PSA Risk Rating (From Table D3)</b>		<b>PASS</b>
	<b>Compliance rating</b>		<b>High</b>

#### References:

**R1** IOTC EXECUTIVE SUMMARY: KAWAKAWA (Updated Dec 2018) 3pp

[http://www.iotc.org/sites/default/files/documents/science/species\\_summaries/english/Kawakawa2018.pdf](http://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Kawakawa2018.pdf)

**R2** Yingyuad, W. and Chanrachkij, I. (2010). Purse seine fisheries of Thailand. South East Asian Fisheries Development Centre (SEAFDC). Pg 43 (mesh size), pg 58 (neritic tunas)

<http://map.seafdec.org/downloads/pdf/Report%20Purse%20Seine%20Fisheries%20of%20Thailand%20for%20printing%20New%20format.pdf>

**R3** Reviewed Native Distribution Map for *Euthynnus affinis*: Degree of habitat suitability interpreted as probability of occurrence <http://www.aquamaps.org>

**R4** Fishbase, <http://www.fishbase.org/Summary/SpeciesSummary.php?ID=96&AT=kawakawa>

**R5** IUCN Red List: <http://www.iucnredlist.org/details/170336/0>

**R6** Fishsource: Kawakawa Thailand Pacific: [https://www.fishsource.org/stock\\_page/1072](https://www.fishsource.org/stock_page/1072)

*Standard clauses 1.3.2.2*