MarinTrust Standard V2

By-product Fishery Assessment, THA25

Bigeye Tuna (Thunnus obesus), FAO 51 and 57 - Indian Ocean, Western and Eastern

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Bigeye tuna (*Thunnus obesus*)
	Geographical area:	FAO 51 and 57 – Indian Ocean, Western and Eastern
	Country of origin of the product:	Thailand
	Stock:	Indian Ocean
Date	October 2023	
Report Code	THA25	
Assessor	Blanca Gonzalez	
Country of origin of the product - PASS	Thailand	
Country of origin of the product - FAIL	None	

Application details and summary of the assessment outcome			
Company Name(s): Piyo Bhokabhan Co. Ltd, Chotiwat Manufacturing Public Co.,Ltd, South East Asian Packaging and Canning Ltd,T.C Union Argotech Co Ltd			
Country: Thailand			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		LRQA	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Blanca Gonzalez	Jose Peiro Crespo	0.4	Surveillance 1
Assessment Period	October 2023 – October 2024		

Scope Details	
Main Species	Bigeye tuna (*Thunnus obesus*)
Stock	Indian Ocean
Fishery Location	FAO 51 and 57 – Indian Ocean, Western and Eastern
Management Authority (Country/ State)	Indian Ocean Tuna Commission (IOTC)
Gear Type(s)	Purse seine, longline, line, baitboat and gillnets
Outcome of Assessment	
Peer Review Evaluation	Pass
Recommendation	Approve

Table 2. Assessment Determination

Assessment Determination
Bigeye tuna (*Thunnus obesus*) was assessed as a category C species considering that it is a Vulnerable species by the IUCN, it is not in included in any CITES Appendixes, reference points and the fishery is subject to management by the Indian Ocean Tuna Commission (IOTC). The most recent Bigeye tuna stock assessment was carried out in 2022 by the IOTC using models that take into consideration catch data since 1950. Results indicates that the stock is overfished; however, biomass is above the limit reference point. The bigeye tuna by-product meets the Marin Trust requirements and it should remain approved for use as a raw material.

Fishery Assessment Peer Review Comments
The by-product fishery under assessment is Bigeye tuna (*Thunnus obesus)* purse seine, longline and line (others) fishery in FAO areas 51 and 57 (Eastern and Western Indian Ocean). The species is classified as VU by the IUCN. The stock is managed relative to biomass-based reference points and therefore it is first assessed as a category C species. The most recent stock assessment conducted by the IOTC working group for bigeye tuna indicates that the stock is overfished, SSB_{2021} was below SB_{MSY} and that F_{2021} was above F_{MSY} but it is above Blim. Therefore, it passes category C. The peer review supports the auditor's recommendation to pass Bigeye tuna purse seine, longline and line (others) fishery in FAO areas 51 and 57 (Eastern and Western Indian Ocean) under the Marin Trust IFFO RS v2.0 by-fishery standard for the production of fishmeal and fish oil.

Notes for On-site Auditor
There are no concerns that requires attention from the on-site assessor.

Species Categorisation

NB: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in CITES Appendix 1, it **cannot** be approved for use as an MarinTrust raw material.

IUCN Red list Category

By-product material from a species listed by IUCN (the International Union for Conservation of Nature) under the Red List for the following categories shall immediately fail the assessment;

- EXTINCT (E) AND EXTINCT IN THE WILD (EW)

- CRITICALLY ENDANGERED (CR) facing an extremely high risk of extinction in the wild.

- ENDANGERED (EN) facing a very high risk of extinction in the wild.

By-product material may be used from the following categories provided that all clauses in the MarinTrust standard are passed.

- VULNERABLE (VU) facing a high risk of extinction in the wild.

- NEAR THREATENED (NT) does not qualify for above now, but is close or is likely to qualify for, a threatened category in the near future.

- LEAST CONCERN (LC) Widespread and abundant.

- DATA DEFICIENT (DD) and NOT EVALUATED (NE)

Table 3 Species Categorisation Table

Common name	Latin name	Stock	Management	Category	IUCN Red List Category[1]	CITES Appendix 1[2]
Bigeye tuna	*Thunnus obesus*	FAO 51 and 57 – Indian Ocean, Western and Eastern	Yes	C	Vulnerable[3]	No

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[1] https://www.iucnredlist.org/
[2] https://cites.org/eng/app/appendices.php
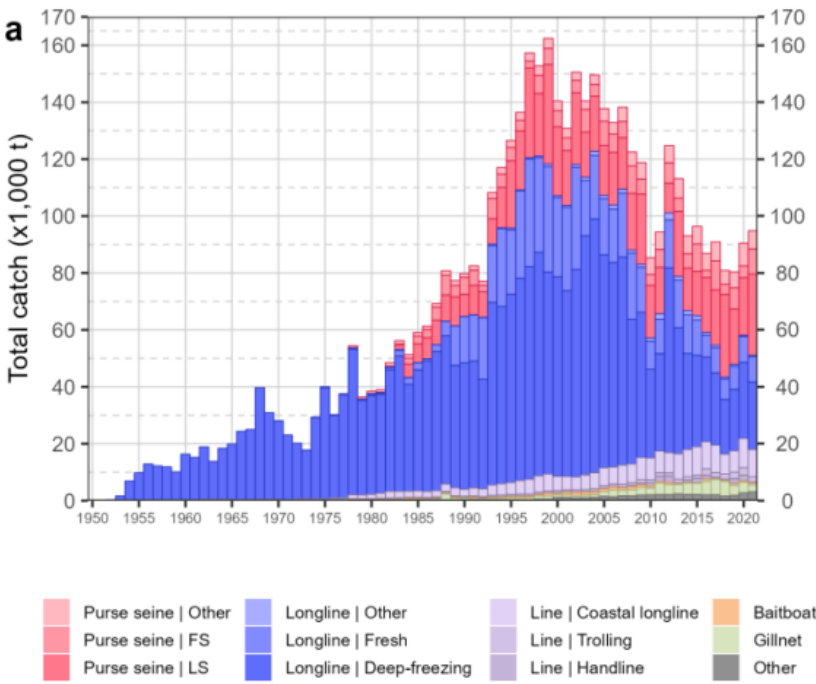[3] https://www.iucnredlist.org/species/21859/46912402

CATEGORY C SPECIES

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. Where a species fails this Clause, it should be assessed as a Category D species instead.

Species Name		Bigeye tuna (*Thunnus obesus*)	
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

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.

Clause is met considering that:

The bigeye tuna Indian ocean stock is assessed by the Indian Ocean Tuna Commission (IOTC). Catch data are available since 1950 (figure 1) and were used for the most recent stock assessment carried out in 2022 using two models: Statistical Catch at Size (SCAS) and Stock Synthesis (SS3), with the SS3 stock assessment selected to provide scientific advice. (IOTC 2022).

Figure 1: Bigeye tuna annual time series of cumulative nominal catches (metric tonnes) by fishery group (IOTC 2022).

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 is met considering that:

In the last bigeye tuna stock assessment results indicates that the stock is overfished given that Spawning Biomass in 2021 in below SB_{MSY} and that Fishing Mortality in 2021 is above F_{MSY} (79%). However, biomass (SB_{2021} / SB_{MSY} = 0.90) is above the limit reference point (SB_{lim}=0.5) (figure 2) (IOTC 2022).
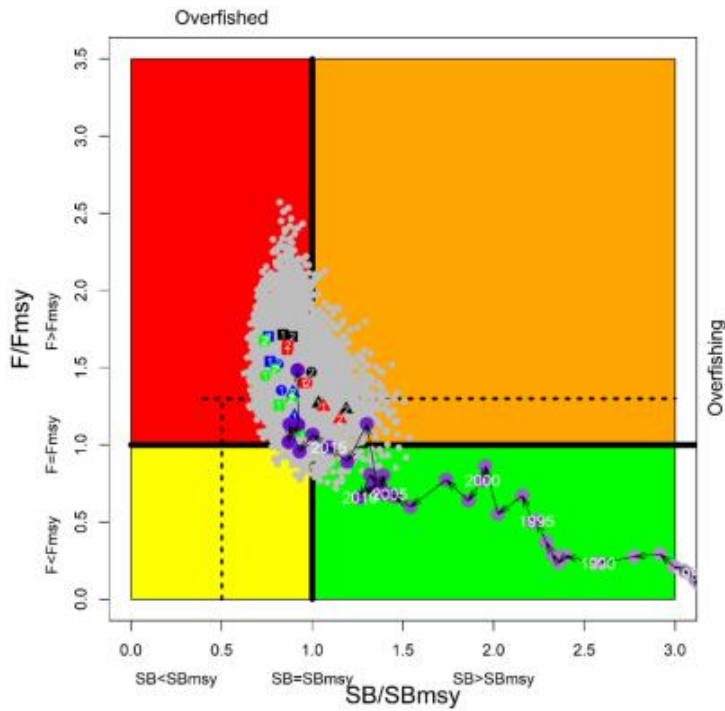

Figure 2. Bigeye tuna Indian Ocean assessment Kobe plot. The coloured points represent stock status estimates from the 24 model options. The purple dot and arrowed line represent estimates of the reference model (the last purple dot represents the terminal year of 2021). Grey dots represent uncertainty from individual models. The dashed lines represent limit reference points for IO bigeye tuna (SBlim = 0.5 SBMSY and Flim = 1.4 FMSY) (IOTC 2022).

References	
IOTC. 2022. Bigeye tuna stock status, executive summary, 2022. https://iotc.org/sites/default/files/content/Stock_status/2022/Bigeye2022E.pdf	

Links	
MarinTrust Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

CATEGORY D SPECIES

Category D species are those which 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. 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.

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**
Availability (area overlap)			
Encounterability (the position of the stock/species within the water column relative to the fishing gear)			
Selectivity of gear type			
Post-capture mortality			
	Average Susceptibility Score		
	PSA Risk Rating (From Table D3)		
	Compliance rating		
Further justification for susceptibility scoring (where relevant) *For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision*			
References			
Standard clauses 1.3.2.2			

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	High productivity (Low risk, score = 1)	Medium productivity (medium risk, score = 2)	Low productivity (high risk, score = 3)
Average age at maturity	<5 years	5-15 years	>15 years
Average maximum age	<10 years	10-25 years	>25 years
Fecundity	>20,000 eggs per year	100-20,000 eggs per year	<100 eggs per year
Average maximum size	<100 cm	100-300 cm	>300 cm
Average size at maturity	<40 cm	40-200 cm	>200 cm
Reproductive strategy	Broadcast spawner	Demersal egg layer	Live bearer
Mean Trophic Level	<2.75	2.75-3.25	>3.25

Susceptibility attributes	Low susceptibility (Low risk, score = 1)		Medium susceptibility (medium risk, score = 2)		High susceptibility (high risk, score = 3)	
Areal overlap (availability) Overlap of the fishing effort with the species range	<10% overlap		10-30% overlap		>30% overlap	
Encounterability The position of the stock/species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Low overlap with fishing gear (low encounterability).		Medium overlap with fishing gear.		High overlap with fishing gear (high encounterability). Default score for target species	
Selectivity of gear type Potential of the gear to retain species	a	Individuals < size at maturity are rarely caught	a	Individuals < size at maturity are regularly caught.	a	Individuals < size at maturity are frequently caught
	b	Individuals < size at maturity can escape or avoid gear.	b	Individuals < half the size at maturity can escape or avoid gear.	b	Individuals < half the size at maturity are retained by gear.
Post-capture mortality (PCM) The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Evidence of majority released post-capture and survival.		Evidence of some released post-capture and survival.		Retained species or majority dead when released.	

D3		Average Susceptibility Score		
		1 - 1.75	1.76 - 2.24	2.25 - 3
Average Productivity Score	1 - 1.75	PASS	PASS	PASS
	1.76 - 2.24	PASS	PASS	TABLE D4
	2.25 - 3	PASS	TABLE D4	TABLE D4

D4	Species 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 management process, and reasonable measures are taken to minimise these impacts.	
	D4.2	There is no substantial evidence that the fishery has a significant negative impact on the species.	
		Outcome:	

Evidence

D4.1: The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.

D4.2 There is no substantial evidence that the fishery has a significant negative impact on the species.

References

Links

MarinTrust Standard clause	1.3.2.2, 4.1.4
FAO CCRF	7.5.1
GSSI	D.5.01