



MarinTrust Standard V2

By-product Fishery Assessment

Bigeye tuna (Thunnus obesus) in FAO 71 & 77 (eastern & western central Pacific Ocean)

MarinTrust Programme

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Bigeye tuna (<i>Thunnus obesus</i>)
	Geographical area:	FAO 71, western central Pacific Ocean FAO 77, eastern central Pacific Ocean
	Country of origin of the product:	Thailand (flag state(s): Thailand, India, China, Taiwan, USA, Kiribati)
	Stock:	Western Central Pacific Ocean (WCPO) bigeye tuna
Date	28 July 2023	
Report Code	THA24	
Assessor	Matthew Jew	
Country of origin of the product - PASS	Thailand (flag state(s): Thailand, India, China, Taiwan, USA, Kiribati)	
Country of origin of the product - FAIL	NA	

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,			
Country: Thailand			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		Global Trust Certification	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Matthew Jew	Ivan Mateo	0.5	Re-approval
Assessment Period	Up to July 2023		

Scope Details	
Main Species	Bigeye tuna (<i>Thunnus obesus</i>)
Stock	Western Central Pacific Ocean (WCPO) bigeye tuna
Fishery Location	FAO 71, western central Pacific Ocean FAO 77, eastern central Pacific Ocean
Management Authority	Western & Central Pacific Fisheries Commission (WCPFC)
Gear Type(s)	Longline, pole and line, purse seine, and others
Outcome of Assessment	
Peer Review Evaluation	Agree with assessor's assessment
Recommendation	APPROVED

Table 2. Assessment Determination

Assessment Determination
<p>If any species is categorised as Endangered or Critically Endangered on IUCN’s Red List, or if it appears in the CITES appendices, it cannot be approved for use as Marin trust raw material. Bigeye tuna (<i>Thunnus obesus</i>) does not appear as Endangered or Critically Endangered on IUCN’s Red List, and does not appear in CITES appendices; therefore, <i>Thunnus obesus</i> is eligible for approval for use as Marin trust by-product raw material.</p> <p>There are two stocks of bigeye tuna in the Pacific Ocean and are managed by two different management commissions. They are defined as:</p> <ol style="list-style-type: none"> 1. Western central Pacific Ocean (WCPO) bigeye tuna defined as west of longitude 150°W and managed by the Western & Central Pacific Fisheries Commission. 2. Eastern Pacific Ocean (EPO) bigeye tuna defined as east of longitude 150°W and managed by the Inter-American Tropical Tuna Commission (IATTC) <p>Both stocks fall within the fished area of FAO 71 & 77. For the purposes of this assessment, the only stock considered is the WCPO bigeye tuna.</p> <p>Fishery removals are included in the stock assessment, and it PASSES Clause C1.1. The stock is considered, in its most recent stock assessment, to have biomass above the limit reference point, it PASSES Clause C1.2.</p> <p>Therefore, WCPO bigeye tuna is APPROVED for the production of fishmeal and fish oil under the current MarinTrust v2.0 by-products.</p>
Fishery Assessment Peer Review Comments
<p>The assessor correctly classified WCPO bigeye tuna in category C, the stock is managed, and reference points are defined to assess the stock status against.</p> <p>Fishery removals from the stock are considered in the stock assessment process. The most recent stock assessment shows that the stock is considered to have a biomass well above the limit reference point. Therefore, WCPO bigeye tuna passes both C1.1 and C1.2 and therefore WCPO bigeye tuna is approved</p>
Notes for On-site Auditor
<p>N/A</p>

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 a 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	<i>Thunnus obesus</i>	WCPO bigeye tuna	WCPFC	C	VU	No

¹ <https://www.iucnredlist.org/>

² <https://cites.org/eng/app/appendices.php>

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		
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.
	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: **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.

Stock assessments of bigeye tuna in the WCPO have been conducted regularly since 1999 by the WCPFC. The most recent assessment was conducted in 2020 and included catch, effort, length-frequency and weight-frequency data from 1952-2015. The 16th Scientific Committee (SC16) 2020 stock assessment noted that the preliminary estimate of total catch of WCPO bigeye tuna for 2019 was 135,680 mt, a 9% decrease from 2018 and an 8% decrease from the average 2014-2018. Longline catch in 2019 (68,371 mt) was a 0% decrease from 2018 and a 2% increase from the 2014-2018 average. Purse seine catch in 2019 (50,819 mt) was a 22% decrease from 2018 and a 17% decrease from the 2014-2018 average. Pole and line catch (1,400 mt) was a 66% decrease from 2018 and a 66% decrease from the average 2014-2018 catch. Catch by other gear totalled 15,090 mt and was a 33% increase from 2018 and 1% increase from the average catch in 2014-2018).

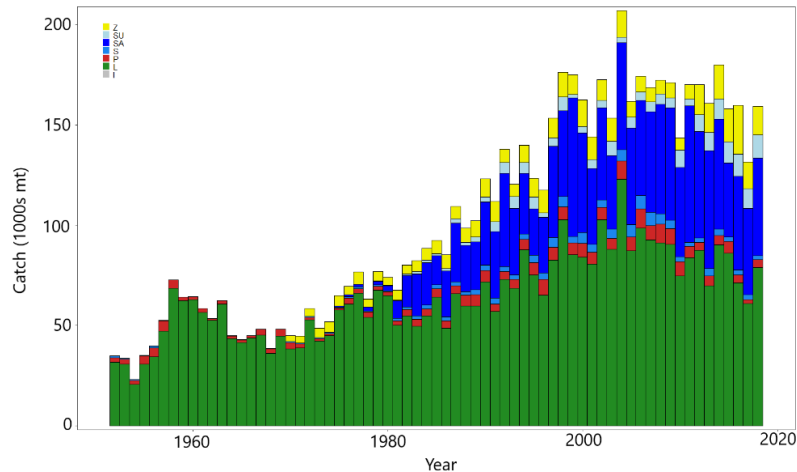


Figure 1. Time series of total annual catch (1000s mt) by fishing gear for the diagnostic model over the full assessment period. The different colors refer to longline (green), pole-and-line (red), purse seine (blue), purse seine associated (dark blue), purse seine unassociated (light blue), miscellaneous (yellow), and index (gray). Note that the catch by longline gear has been converted into catch-in-weight from catch-in-numbers and so may differ from the annual catch estimates presented in (Williams et al., 2020), however these catches enter the model as catch-in-numbers. Source: WCPFC, 2021

Therefore, fishery removals of the species in the fishery under assessment are included in the stock assessment process and therefore the stock PASSES clause C1.1

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.

Based on the uncertainty grid adopted by SC16, the WCPO bigeye tuna spawning biomass is above the biomass Limit Reference Point (LRP) and recent F is very likely below F_{MSY} . The stock is not overfished (100% probability $SB/SBF=0 > LRP$) and likely not experiencing overfishing (87.5% probability $F < F_{MSY}$, see figure 3, named “Figure BET-9” and “Figure BET-10” below).

SC16 recommends as a precautionary approach that the fishing mortality on bigeye tuna stock should not be increased from the level that maintains spawning biomass at 2012-2015 levels until the Commission can agree on an appropriate target reference point.

From Figure 2, it can be stated that the stock is not overfished nor is it experiencing overfishing. And Figure 3, shows that the current stock status (to the left of the grey vertical line) is above the agreed upon limit reference point (horizontal dashed red line).

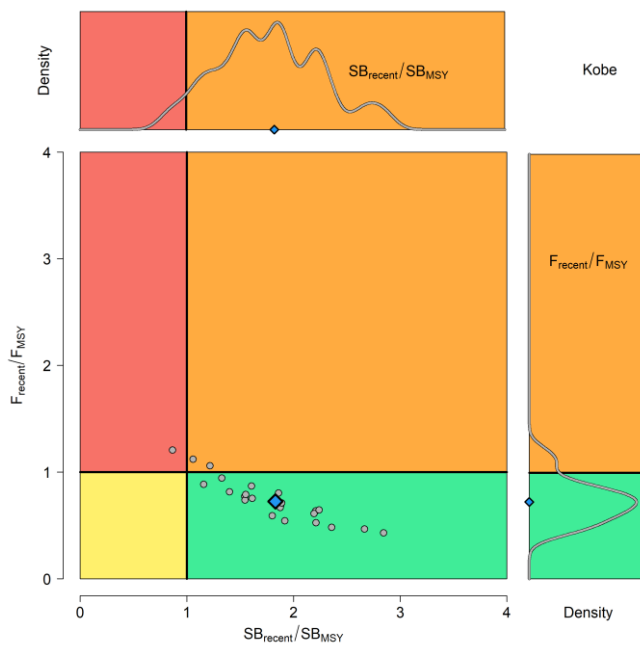


Figure 2. Kobe plot for the recent spawning potential (2015–2018) summarizing the results for each of the models in the structural uncertainty grid. The plots represent estimates of stock status in terms of spawning biomass depletion and fishing mortality. Marginal distributions of each are presented. The median is shown in blue.
Source: WCPFC, 2021.

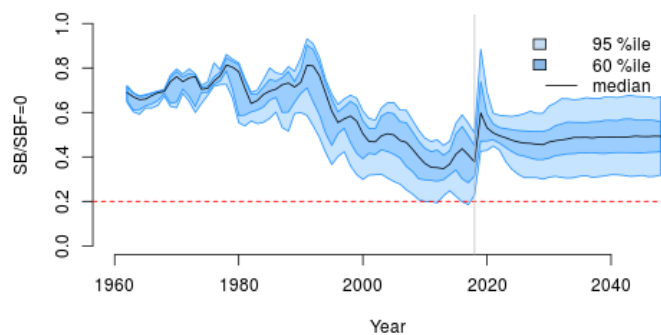


Figure 3. Time series of bigeye tuna spawning potential $SB_t/SB_{F=0}$, where $SB_{F=0}$ is the average SB from $t-10$ to $t-1$, relative to the current year t , from the uncertainty grid of assessment models for the period 2000 to 2018, and stochastic projection results for the period 2019 to 2048 assuming 2016-2018 average catches in longline and other fisheries and 2018 effort in purse seine fisheries continue. Vertical gray line at 2018 represents the last year of the assessment. During the projection period (2019-2048) levels of recruitment variability are assumed to match those over the short-term period (2008-2017). The red horizontal dashed line represents the agreed limit reference point. Source: WCPFC, 2021

Therefore, the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point and it PASSES clause C1.2.

References

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. SCIENTIFIC COMMITTEE. WCPO BIGEYE TUNA (*Thunnus obesus*). STOCK STATUS AND MANAGEMENT ADVICE. 17 February 2021: <https://www.wcpfc.int/doc/01/bigeeye-tuna>.

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)		
	<i>For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision</i>		
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	