



MarinTrust Standard V2

By-product Fishery Assessment

Bigeye Tuna in FAO Areas 51 & 57

(Indian Ocean Bigeye Tuna)

MarinTrust Programme

Unit C, Printworks

22 Amelia Street

London

SE17 3BZ

E: standards@marin-trust.com

T: +44 2039 780 819

Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Bigeye tuna (<i>Thunnus obesus</i>)
	Geographical area:	FAO Areas 51 & 57, Western & Eastern Indian Ocean
	Country of origin of the product:	Thailand
	Stock:	Indian Ocean Bigeye Tuna
Date	October 2022	
Report Code	THA25	
Assessor	Sam Peacock	
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):			
Country: Thailand			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		LRQA	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Sam Peacock	Kate Morris	0.25	Surveillance
Assessment Period	October 2022 – October 2023		

Scope Details	
Main Species	Bigeye tuna (<i>Thunnus obesus</i>)
Stock	Indian Ocean Bigeye Tuna
Fishery Location	FAO Areas 51 & 57, Western & Eastern Indian Ocean
Management Authority (Country/ State)	Indian Ocean Tuna Commission (IOTC)
Gear Type(s)	Purse seine, longline
Outcome of Assessment	
Peer Review Evaluation	Pass
Recommendation	Maintain approval

Table 2. Assessment Determination

Assessment Determination
<p>Bigeye tuna is categorised by the IUCN Red List as Vulnerable and does not appear in the CITES appendices. Bigeye tuna in the Indian Ocean is managed relative to reference points by the Indian Ocean Tuna Commission (IOTC), and was therefore assessed under Category C.</p> <p>Regular stock assessments are conducted by the IOTC secretariat, most recently in 2019. The stock assessment incorporates all reliable catch information, and unreliable or absent catch information is estimated for the purposes of the stock assessment model. The stock biomass is currently considered to be above SSB_{MSY}, and therefore above any potential limit reference point. For these reasons bigeye tuna in the Indian Ocean meets the requirements of the MT byproduct assessment and should be approved for use as a raw material.</p>
Fishery Assessment Peer Review Comments
<p>The by-product fishery under assessment here is the Indian Ocean Bigeye tuna (<i>Thunnus obesus</i>) fishery which is pursued by Thai vessels in FAO fishing areas 51 & 57. Bigeye tuna is managed by Indian Ocean Tuna Commission (IOTC). For this Marin Trust assessment, Bigeye tuna is scored as a category C species. All species scoring tables have been completed by the auditor with sufficient evidence presented to support their final determination.</p> <p>The peer review supports the auditor’s recommendation to Pass this fishery under the Marin Trust IFFO RS v2.0 by-fishery standard for the production of fishmeal and fish oil.</p>
Notes for On-site Auditor

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>	Indian Ocean Bigeye Tuna	Yes	C	Vulnerable ³	No

¹ <https://www.iucnredlist.org/>

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

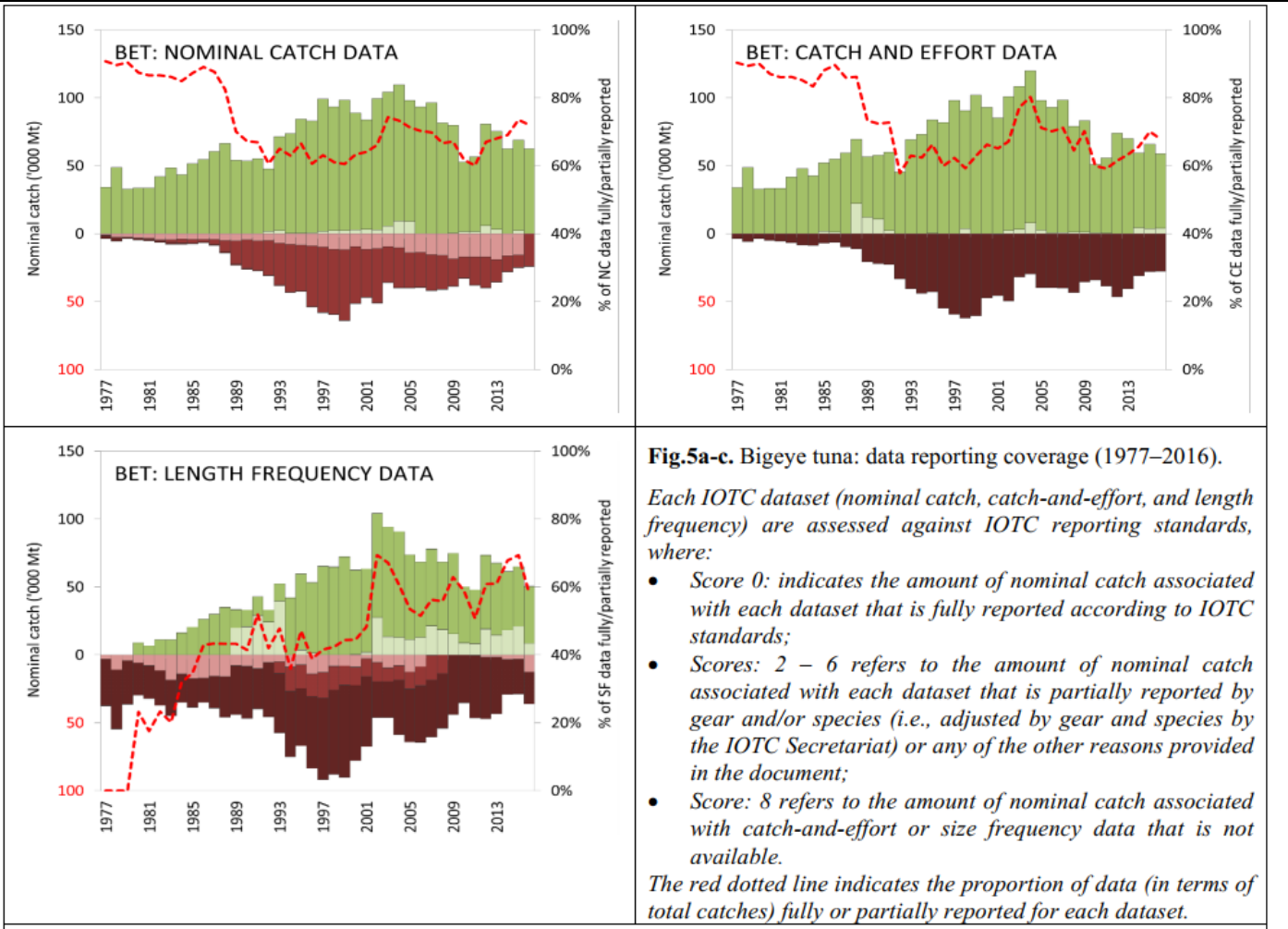
³ <https://www.iucnredlist.org/species/21859/46912402>

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	
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
<p>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.</p> <p>Regular stock assessments are conducted by the Indian Ocean Tuna Commission (IOTC). The most recent assessment was conducted in 2019 and used to inform stock status discussions in 2021 (IOTC 2021). The assessment incorporated actual landings data as far as these were available and estimated additional landings where they were not. Data are considered to be relatively reliable for the main industrial fleets, but less so for some components of the industrial fishery and much of the artisanal fishery (IOTC 2017). Overall, around 16% of landings included in the 2019 stock assessment were estimated by the IOTC secretariat (IOTC 2021).</p> <p>Fishery removals and other fishery-dependent data sources are included in the stock assessment process, and C1.1 is met.</p>			



Catch, catch and effort, and length frequency data used in the IOTC stock assessment. See notes within the figure for more detail (IOTC 2017).

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.

The IOTC stock assessment executive summary includes an estimate of the current status of the stock relative to reference points. The stock is considered overfished if SSB is estimated to be below SSB_{MSY} , and subject to overfishing if F is estimated to be above F_{MSY} . The results of the 2019 stock assessment are summarised in the tables below; in short, the most likely situation is that bigeye tuna in the Indian Ocean is not overfished but it is subject to overfishing. As the balance of probability indicates that SSB is currently above SSB_{MSY} , biomass is above any potential limit reference point and C1.2 is met.

Area ¹	Indicator	Value	Status ³
Indian Ocean ¹	Catch in 2020 (t) ²	83,498	38.2%*
	Average catch 2016-2020 (t)	86,880	
	MSY (1,000 t) (80% CI)	87 (75-108)	
	F _{MSY} (80% CI)	0.24 (0.18-0.36)	
	SB _{MSY} (1,000 t) (80% CI)	503 (370-748)	
	F ₂₀₁₈ / F _{MSY} (80% CI)	1.20 (0.70-2.05)	
	SB ₂₀₁₈ / SB _{MSY} (80% CI)	1.22 (0.82-1.81)	
	SB ₂₀₁₈ / SB ₀ (80% CI)	0.31 (0.21-0.34)	

¹Boundaries for the Indian Ocean stock assessment are defined as the IOTC area of competence
²Proportion of 2020 catch fully or partially estimated by IOTC Secretariat : 16.3%
³The stock status refers to the most recent years' data used in the assessment conducted in 2019, i.e., 2018
*Estimated probability that the stock is in the respective quadrant of the Kobe Plot (shown below), derived from the confidence intervals associated with the current stock status.

Colour key	Stock overfished (SB ₂₀₁₈ / SB _{MSY} <1)	Stock not overfished (SB ₂₀₁₈ / SB _{MSY} ≥ 1)
Stock subject to overfishing (F ₂₀₁₈ / F _{MSY} ≥ 1)	34.6%	38.2%
Stock not subject to overfishing (F ₂₀₁₈ / F _{MSY} ≤ 1)	0%	27.2%
Not assessed / Uncertain		

The percentages are calculated as the proportion of model terminal values that fall within each quadrant with model weights taken into account

Status of Bigeye Tuna in the Indian Ocean (IOTC, 2021)

References

IOTC (2021). Bigeye tuna stock status, executive summary, 2021.
https://iotc.org/sites/default/files/documents/science/species_summaries/english/2_Bigeye2021E.pdf

IOTC (2017). Bigeye tuna stock status, supporting information.
https://iotc.org/sites/default/files/documents/science/species_summaries/english/Bigeye_tuna_Supporting_information.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)		
	<i>For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision</i>		
References			
<i>Standard clauses 1.3.2.2</i>			

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	