



## MarinTrust Standard V2

# By-product Fishery Assessment *Atlantic Big Eye Tuna in FAO Areas 34, 41, 47)*

**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 34, 41, 47 Atlantic Ocean
	Country of origin of the product:	Senegal, Ghana, Liberia (Flag Country)
	Stock:	Atlantic bigeye tuna
Date	May 6, 2022	
Report Code	BP_THA04	
Assessor	Ivan Mateo	
Country of origin of the product - PASS	Senegal, Ghana, Liberia (Flag Country)	
Country of origin of the product - FAIL	NA	

Application details and summary of the assessment outcome			
Company Name(s): Chotiwat Manufacturing			
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
Ivan Mateo	Vito Romito	0.5	Initial
Assessment Period	To May 2022		

Scope Details	
Main Species	Bigeye tuna, <i>Thunnus obesus</i>
Stock	Atlantic bigeye tuna
Fishery Location	FAO 34, 41, 47 Atlantic Ocean
Management Authority (Country/ State)	International Commission for the Conservation of Atlantic Tunas (ICCAT)
Gear Type(s)	Longline, pole & line and purse seine
Outcome of Assessment	
Peer Review Evaluation	Approve
Recommendation	APPROVE

## Table 2. Assessment Determination

<b>Assessment Determination</b>
<p>If any species is categorized 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 MARINTRUST raw material. Bigeye tuna (<i>Thunnus obesus</i>) is not listed as Endangered or Critically Endangered on IUCN's Red List, nor it is listed in CITES appendices; therefore, Atlantic bigeye tuna is eligible for approval for use as MARIN TRUST by-product raw material.</p> <p>There is a single bigeye tuna stock in the Atlantic. This stock is managed at the international level by the International Commission for the Conservation of Atlantic Tunas (ICCAT). ICCAT conducts stock assessments; reference points are defined for the Atlantic bigeye tuna stock</p> <p>The stock is classified as Category C.</p> <p>Fishery removals of the stock are considered in the various stock assessment processes so the stock PASSES Clause C1.1.</p> <p>The stock assessment concluded that the stock is overfished and overfishing is occurring. However, assuming the limit reference point (currently not defined) is half the target as it is the case in many fisheries, we can safely assume that the stock is above the assumed limit reference point. For example, in this case biomass is 94% of Bmsy which should be well above the assumed Blim level (50% Bmsy).</p> <p>Therefore, Atlantic bigeye tuna is APPROVED by the assessor for the production of fishmeal and fish oil under the current Marin Trust v.2.0 by-product Standard.</p>
<b>Fishery Assessment Peer Review Comments</b>
<p>The assessor correctly classified the bigeye tuna Atlantic stock as Category C since it is assessed and has reference points.</p> <p>Fishery removals of the stock are considered in the various stock assessment processes so the stock PASSES Clause C1.1. The stock assessment concluded that the stock biomass is 94% of Bmsy which should be well above the assumed Blim level (50% BMSY).</p> <p>Therefore, Atlantic bigeye tuna shall be APPROVED for the production of fishmeal and fish oil under the current Marin Trust v.2.0 by-product Standard.</p>
<b>Notes for On-site Auditor</b>
None.

## 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 <sup>1</sup>	CITES Appendix 1 <sup>2</sup>
Bigeye tuna	<i>Thunnus obesus</i>	Atlantic bigeye tuna	International Commission for the Conservation of Atlantic Tunas (ICCAT)	C	VU	No

<sup>1</sup> <https://www.iucnredlist.org/>

<sup>2</sup> <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		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><b>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.</b></p> <p>The last stock assessment for bigeye tuna was conducted in 2021 using fishery data from the 1950-2020 period. Total catches from the 1950-2020 period are shown in <b>Figure 1</b>. The total annual Task I catch (<b>Figure 1</b>) increased continuously up to the mid-1970s reaching 60,000 t and fluctuated over the next 15 years. In 1992, catch reached 100,000 t and continued to increase, reaching a historic high of about 135,000 t in 1994. Since then, reported and estimated catch continuously declined and fell to 59,192 t by 2006. From the low level of 2006, catches increased again and reached 79,524 t in 2015. Catches averaged 77,241 t in the period 2015-2019. The preliminary catch reported for 2020 was 57,486 t, below the TAC of 62,500 t. Therefore, the stock PASSES Clause C1.1.</p>			
<p><b>Figure 1.</b> Bigeye tuna estimated and reported catches for all the Atlantic stock (t). The value for 2020 represents catch reports until September 18, 2021</p>			

**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.**

A stock assessment for bigeye tuna was conducted in 2021 through a process that included a data preparatory meeting in April and an assessment meeting in July. The stock assessment used fishery data from the period 1950-2019 and indices of relative abundance used in the assessment were calculated through 2019. As in 2018, stock status evaluations for Atlantic bigeye tuna used in 2021 several modelling approaches, ranging from non-equilibrium (MPB) and Bayesian state-space (JABBA) production models to integrated statistical assessment models (Stock Synthesis).

The stock synthesis uncertainty grid shows 1950 - 2019 trajectories of increasing F and decreasing B towards the red area of the Kobe plot ( $F > F_{MSY}$  and  $SSB < SSB_{MSY}$ ) (Figure 2). Overfishing starts in around 1993 and the stock becomes overfished around 1997, therefore reaching the red quadrant of the Kobe plot and mostly remained in the red quadrant until 2019 when overfishing ceased (Figure 2). The results of the assessment based on the median of the entire uncertainty grid shows that in 2019 the Atlantic bigeye tuna stock was overfished (median  $SSB_{2019}/SSB_{MSY} = 0.94$  and 80% CI of 0.71 and 1.37) and was not undergoing overfishing (median  $F_{2019}/F_{MSY} = 1.00$  and 80% CI of 0.63 and 1.35). The average of MSY was estimated as 86,833 t with (80% CI of 72,210 and 106,440) from the uncertainty grid deterministic runs.

The stock assessment concluded that the stock is overfished, and overfishing is not occurring (Table 3, Figure 2).  $SSB_{2019}$  is below  $SSB_{MSY}$ . However, assuming the limit reference point (currently not defined) is half the target as it is the case in many fisheries, we can safely assume that the stock is above the assumed limit reference point. For example, in this case biomass is 94% of  $B_{msy}$  which should be well above the assumed  $B_{lim}$  level. The stock PASSES Clause C1.2.

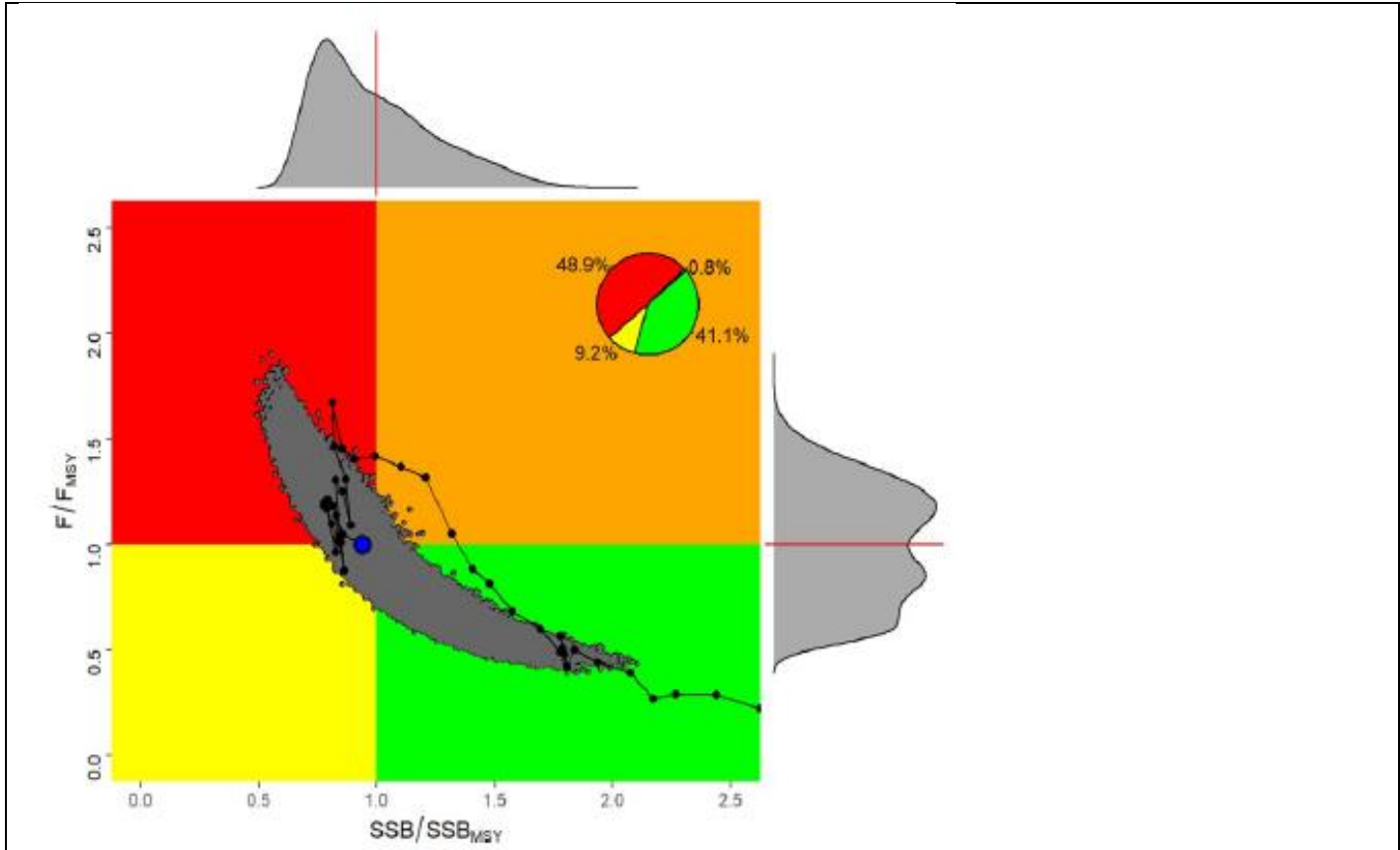
**Table 3. Atlantic Bigeye Tuna Summary**

ATLANTIC BIGEYE TUNA SUMMARY	
Maximum Sustainable Yield	86,833 t with (72,210 -106,440 t) <sup>1</sup>
Current (2020) Yield	57,486 t <sup>2</sup>
Relative Spawning Biomass ( $SSB_{2019}/SSB_{MSY}$ )	0.94 (0.71-1.37) <sup>1</sup>
Relative Fishing Mortality ( $F_{2019}/F_{MSY}$ )	1.00 (0.63-1.35) <sup>1</sup>
Stock Status (2019)	Overfished: Yes <sup>3</sup> Overfishing: No <sup>3</sup>
Conservation & management measures in effect:	Rec. 16-01, Rec. 18-01, Rec. 19-02  <ul style="list-style-type: none"> <li>- Total allowable catch for 2020-2021 was set to 62,500 and 61,500 t respectively for Contracting Parties and Cooperating non-Contracting Parties, Entities or Fishing Entities.</li> <li>- Specific limits of number of longline boats; China (65), Chinese Taipei (75), Philippines (5), Korea (14), EU (269) and Japan (231).</li> <li>- Specific limits of number of purse seine boats; EU (34) and Ghana (17).</li> <li>- No fishing with natural or artificial floating objects from 1 January to 31 March in 2021, throughout the Convention area.</li> <li>- No more than 300 FADs active at any time by vessel.</li> <li>- Use of non-entangling FADs.</li> </ul>

<sup>1</sup> Combined result of stock synthesis 27 uncertainty grid runs. Median and 10 and 90% percentile in brackets.

<sup>2</sup> Reports for 2020 reflect most recent data but should be considered provisional.

<sup>3</sup> Probability of overfished 58%, probability of overfishing 50%.



**FIGURE 2.** Stock Synthesis: Kobe plot of SSB/SSB<sub>MSY</sub> and F/F<sub>MSY</sub> for stock status of Atlantic bigeye tuna in 2019 based on the log multivariate normal approximation across the 27-uncertainty grid model runs of Stock Synthesis with an insert pie chart showing the probability of being in the red quadrant (48.9 %), green quadrant (41.1 %), orange (0.8%) and in yellow (9.2 %). Blue circle is the median and marginal histograms represent distribution of either SSB/SSB<sub>MSY</sub> or F/F<sub>MSY</sub>.

**References**

Collette, B., Acero, A., Amorim, A.F., Boustany, A., Canales Ramirez, C., Cardenas, G., Carpenter, K.E., Chang, S.-K., Chiang, W., de Oliveira Leite Jr., N., Di Natale, A., Die, D., Fox, W., Fredou, F.L., Graves, J., Viera Hazin, F.H., Hinton, M., Juan Jorda, M., Minte Vera, C., Miyabe, N., Montano Cruz, R., Nelson, R., Oxenford, H., Restrepo, V., Schaefer, K., Schratwieser, J., Serra, R., Sun, C., Teixeira Lessa, R.P., Pires Ferreira Travassos, P.E., Uozumi, Y. & Yanez, E. 2011. *Thunnus obesus*. *The IUCN Red List of Threatened Species* 2011: e.T21859A9329255. <https://dx.doi.org/10.2305/IUCN.UK.2011-2.RLTS.T21859A9329255.en>.

ICCAT Stock Assessment and Executive Summary – Bigeye tuna. <https://www.iccat.int/en/assess.html>

**Links**

<b>MarinTrust Standard clause</b>	1.3.2.2
<b>FAO CCRF</b>	7.5.3
<b>GSSI</b>	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.

<b>D1</b>	<b>Species Name</b>		
	<b>Productivity Attribute</b>	<b>Value</b>	<b>Score</b>
	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		
	<b>Average Productivity Score</b>		
	<b>Susceptibility Attribute</b>	<b>Value</b>	<b>Score</b>
	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		
	<b>Average Susceptibility Score</b>		
	<b>PSA Risk Rating (From Table D3)</b>		
	<b>Compliance rating</b>		
	<b>Further justification for susceptibility scoring (where relevant)</b>		
	<i>For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision</i>		
<b>References</b>			
Standard 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 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 - 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			
<b>Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements</b>			
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.		
<b>Outcome:</b>			
<b>Evidence</b>			
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.			
<b>References</b>			
<b>Links</b>			
MarinTrust Standard clause		1.3.2.2, 4.1.4	
FAO CCRF		7.5.1	
GSSI		D.5.01	