MarinTrust Standard V2

By-product Fishery Assessment

USA21 – Bigeye tuna in FAO Areas 51 & 57 (Indian Ocean bigeye)

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Table 1 Application details and summary of the assessment outcome

	Species:	Bigeye tuna (*Thunnus obesus*)
Fishery Under Assessment	Geographical area:	FAO Areas 51 & 57
	Country of origin of the product:	Seychelles, South Africa
	Stock:	Indian Ocean bigeye tuna
Date		June 2023
Report Code		USA21
Assessor		Sam Peacock
Country of origin of the product - PASS		Seychelles, South Africa
Country of origin of the product - FAIL		n/a

Application details and summary of the assessment outcome			
Company Name(s): The Scoular Company - Indian Ocean Tuna Ltd			
Country: USA			
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	0.2	Initial
Assessment Period		June 2023 – June 2024	

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

Table 2. Assessment Determination

Assessment Determination
Bigeye tuna has been categorised as Vulnerable by the IUCN, and does not appear in the CITES appendices. Bigeye in the Indian Ocean (IO bigeye) is managed relative to reference points by the Indian Ocean Tuna Commission (IOTC), and as such was assessed under Category C. IO bigeye is subjected to regular stock assessments by the IOTC, the most recent of which was carried out in 2022. The assessment utilised 24 different model configurations to capture uncertainty in several key variables, and incorporated international catch data. The assessment concluded that stock biomass was around 90% of the MSY level, relative to a limit reference point of 50% of the MSY level. The byproduct therefore meets the MT requirements and should be approved for use as a raw material.

Fishery Assessment Peer Review Comments
The by-product fishery under assessment here is the Bigeye tuna (*Thunnus obesus*) fishery, pursued by vessels in FAO fishing area 51 & 57. Bigeye tuna is managed by international or state regulations. Therefore, for this Marin Trust assessment, the bigeye tuna stock is scored against Category C. The species scoring table has been completed by the auditor with sufficient evidence presented to support their final determination. The peer review supports the auditor's recommendation to pass the FAO 51 & 57, Bigeye tuna stock pursued by the fishery under the Marin Trust IFFO RS v2.0 by-fishery standard for the production of fishmeal and fish oil.

Notes for On-site Auditor

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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*	Indian Ocean Bigeye Tuna	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

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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

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.

Bigeye tuna in the Indian Ocean (IO bigeye) is subject to regular stock assessment by the IOTC. The most recent stock assessment was carried out in 2022 using a Stock Synthesis model with 24 model configurations. The assessment incorporated international catch data, and the range of models used was intended to capture uncertainty on stock recruitment relationship, longline selectivity, growth, and natural mortality (IOTC 2022). Overall, the results of the assessment are considered sufficiently robust to mean that C1.1 is met.

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 2022 stock assessment concluded that spawning biomass levels in 2021 were 25% of the unfished level, and 90% of the level which can support MSY. Taking into account the uncertainty in the assessment process, the IOTC documentation concludes that the stock is "overfished and subject to overfishing" (IOTC 2022). This conclusion indicates that the stock is likely below the target reference point. However, the limit reference point for the stock is defined as $0.5*SB_{MSY}$; i.e. the level at which stock biomass is half the level which can support MSY. As the stock is currently estimated to be at 90% of this level, it is likely above the limit reference point. Additionally, none of the outcomes of the 24 models indicated that biomass was below the LRP. C1.2 is met.
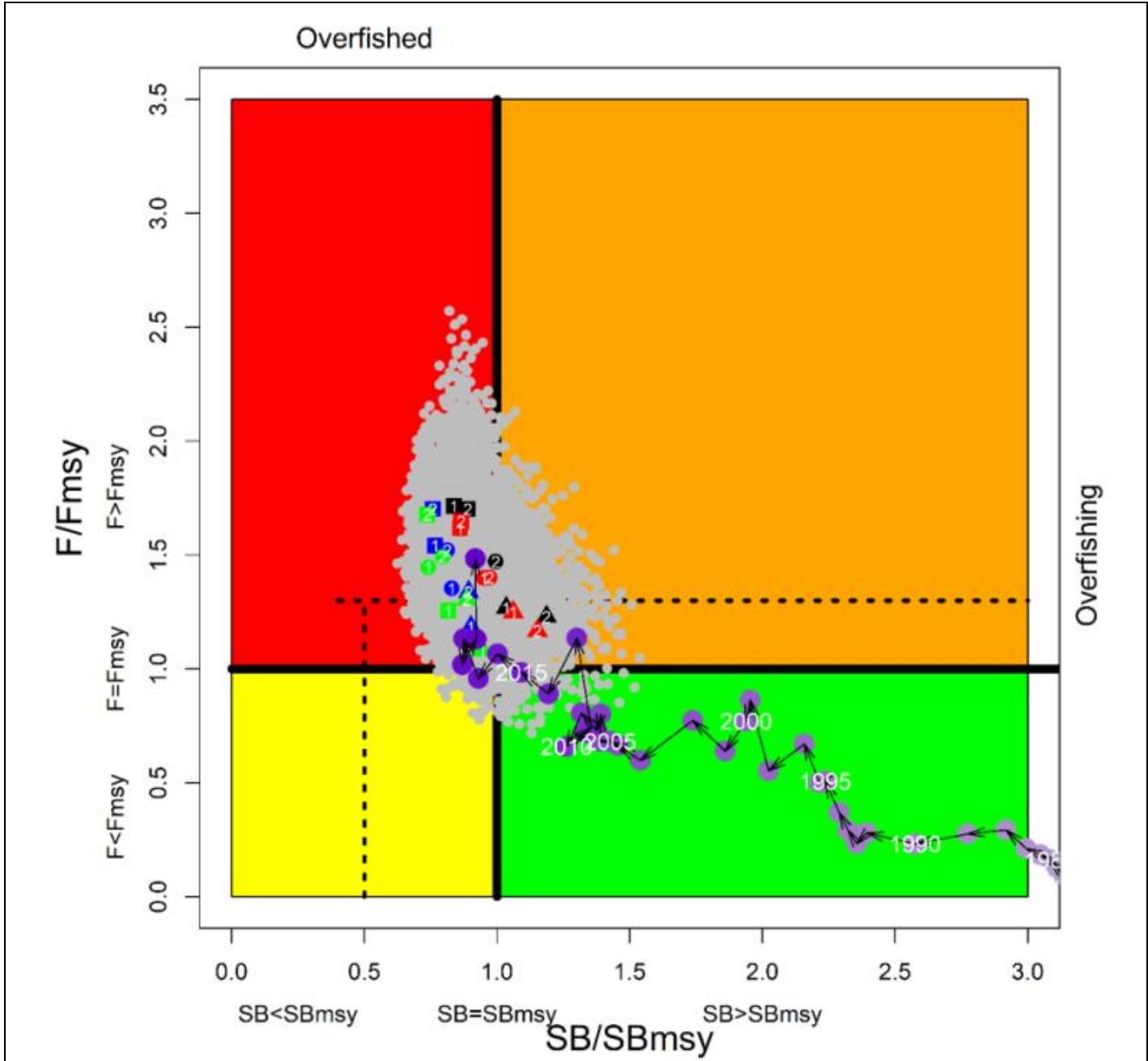
Aggregated Indian Ocean stock assessment Kobe plot for bigeye tuna. Coloured points represent stock status estimates from each of the 24 models. Purple dots represent the time series of stock status estimates. Grey dots represent uncertainty from individual models. Dashed lines indicate IO bigeye tuna limit reference points (IOTC 2022).

References

IOTC (2022). Indian Ocean bigeye tuna stock status and advice, executive summary.
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	n/a		
	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		n/a
	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