

Indian Ocean Tuna - Longline (Star Trading)



Pre-Assessment Report

Conformity Assessment Body (CAB)	Tom Evans – Kang Tai
Fishery client	Star Trading Co. Ltd.
Assessment Type	Pre-assessment
Date of completion	March 2025

Contents

1	Glossary	4
2	Executive summary	6
3	Report details	7
3.1	Aims and constraints of the pre-assessment.....	7
3.2	Version details	7
4	Unit(s) of Assessment	8
4.1	Unit(s) of Assessment.....	8
5	Traceability	10
5.1	Traceability within the fishery.....	10
6	Pre-assessment results	12
6.1	Pre-assessment results overview	12
6.1.1	Overview	12
6.1.2	Recommendations	13
6.2	Summary of potential conditions by Principle	14
6.3	Summary of Performance Indicator level scores	15
6.4	Principle 1	20
6.4.1	Principle 1 background.....	20
6.4.2	Catch profiles	25
6.4.3	Principle 1 Performance Indicator scores and rationales.....	27
PI 1.1.1	– Stock status	27
PI 1.1.2	– Stock rebuilding	31
PI 1.2.1	– Harvest strategy	33
PI 1.2.2	– Harvest control rules and tools.....	40
PI 1.2.3	– Information and monitoring.....	45
PI 1.2.4	– Assessment of stock status.....	50
6.5	Principle 2	55
6.5.1	Principle 2 background.....	55
6.5.2	Principle 2 Performance Indicator scores and rationales.....	60
PI 2.1.1	– Primary species outcome	60
PI 2.1.2	– Primary species management strategy.....	65

	PI 2.1.3 – Primary species information	69
	PI 2.2.1 – Secondary species outcome	71
	PI 2.2.2 – Secondary species management strategy	73
	PI 2.2.3 – Secondary species information	78
	PI 2.3.1 – ETP species outcome	80
	PI 2.3.2 – ETP species management strategy	82
	PI 2.3.3 – ETP species information	90
	PI 2.4.1 – Habitats outcome	92
	PI 2.4.2 – Habitats management strategy	94
	PI 2.4.3 – Habitats information	96
	PI 2.5.1 – Ecosystem outcome	99
	PI 2.5.2 – Ecosystem management strategy	100
	PI 2.5.3 – Ecosystem information	103
6.6	Principle 3	105
6.6.1	Principle 3 background.....	105
6.6.2	Principle 3 Performance Indicator scores and rationales.....	105
	PI 3.1.1 – Legal and/or customary framework.....	105
	PI 3.1.2 – Consultation, roles and responsibilities.....	114
	PI 3.1.3 – Long term objectives	121
	PI 3.2.1 – Fishery-specific objectives	124
	PI 3.2.2 – Decision-making processes	127
	PI 3.2.3 – Compliance and enforcement	137
	PI 3.2.4 – Monitoring and management performance evaluations.....	146
7	Appendices	150
7.1	References.....	150
8	Template information and copyright	151

1 Glossary

ALB	Albacore tuna
ALBWG	Albacore Working Group of the ISC
B ₀	unfished biomass
BMSY	biomass at maximum sustainable yield
CAB	Conformity Assessment Body
CCMs	Cooperating non-members and participating territories
CGA	Coast Guard Administration (Taiwan)
CI	confidence interval
CITES	Convention on International Trade in Endangered Species
cm	centimetre
CMM	Conservation and management measure
CPCs	Contracting Parties, Cooperating non-Contracting Parties, Entities or Fishing Entities
CPUE	Catch Per Unit Effort
EEZ	Exclusive Economic Zone
ETP	Endangered, Threatened or Protected
<i>F</i>	Fishing mortality
FA-COA	Fishery Agency, Council of Agriculture, Taiwan
FAO	Food and Agriculture Organization [of the United Nations]
FCR	Fisheries Certification Requirements [for MSC]
FIP	Fishery Improvement Project
<i>F</i> _{MSY}	fishing rate at which catchability is sustainable and at a maximum
GT	Gross Tonnage
ICCAT	International Commission for the Conservation of Atlantic Tunas (ICCAT)
IOTC	Indian Ocean Tuna Commission
ISC	International Scientific Committee
ISSF	International Seafood Sustainability Foundation
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported and Unregulated fishing
LME	Large Marine Ecosystem
LRP	limit reference point
m	metre
MCS	Monitoring, Control and Surveillance
MARA	Ministry of Agriculture and Rural Affairs (China)
MSC	Marine Stewardship Council
NGO	Non-Governmental Organization

NPO	North Pacific Ocean
NPOA	National Plan of Action
OFDC	Overseas Fishing Development Council
OPRT	Organisation for the Promotion of Responsible Tuna Fishing
P1, P2, P3	Principle 1, Principle 2, Principle 3
PI	performance indicator
PRC	People's Republic of China
RBF	Risk Based Framework
RFMO	Regional Fisheries Management Organisation
SBR	spawning biomass ratio
SG	scoring guidepost
SSB	Spawning Stock Biomass
t	tonnes
TAC	Total Allowable Catch
TRP	target reference point
TTA	Taiwan Tuna Association/Taiwan Deep Sea Tuna Fishery Development Foundation
UoA	Unit of Assessment
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement
US	United States
VME	Vulnerable marine ecosystem
VMS	Vessel Monitoring System
WCPFC	Western Central Pacific Fisheries Commission
YFT	Yellowfin tuna

View the MSC-MSCI Vocabulary. Insert an optional glossary or list of acronyms used. Note that any terms defined here shall not contradict terms used in the MSC-MSCI Vocabulary.

2 Executive summary

This report serves as a pre-assessment of the Star Trading tuna longline fishery operating in the Indian Ocean (IO). The fishery targets albacore (*Thunnus alalunga*), yellowfin (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*) via longline with 16 vessels flagged to Malaysia. These vessels fish in the EEZ's of Seychelles, Mauritius and Madagascar and the high seas (FAO 51 and 57) of the Indian Ocean. The fishery is managed regionally by the Indian Ocean Tuna Commission (IOTC).

The main strengths of the fishery are:

- The stock assessment has been carried out regularly using a range of assessment methods.
- The IOTC has adopted precautionary management, which includes the use of interim target and limit reference points and calls for the use of harvest control rules and management strategy evaluation.
- Albacore tuna stock in the Indian Ocean is currently considered healthy, not overfished nor undergoing overfishing (IOTC 2017; IOTC 2022).
- The Compliance Committee of the RFMO has noted a 73.4% of compliance for measures established in the Indian Ocean in 2021 (IOTC 2021c).

However, the main weaknesses are:

- Yellowfin tuna in the Indian Ocean is overfished and undergoing overfishing.
- Bigeye tuna stock in the Indian Ocean is overfished and undergoing overfishing and the recently implemented HCR still did not directly affect stock status (IOTC 2022a).
- IUU fishing and piracy has been a major issue in the Indian Ocean and there are compliance issues regarding the quality of reported data {IOTC 2013b}. The Commission has taken action to continue addressing these issues, but the success of these measures is not yet known.
- A number of bycatch species, including sharks, sea turtles and sea birds are incidentally captured in fisheries targeting tuna.
- Observer coverage rates are low in fisheries targeting tuna.

This fishery is consistent with the MSC standard in some areas, and comparable tuna fisheries have achieved conditional passes against the standard and received MSC certification.

However, there are still significant environmental impacts from longline fishing and management issues to address.

3 Report details

3.1 Aims and constraints of the pre-assessment

A pre-assessment provides a provisional assessment of a fishery based on a limited set of information provided by the client and gathered by the assessment team; full certification will be conducted completely independently of pre-assessment results. A pre-assessment does not go into the level of detailed and rigorous scrutiny that should be undertaken as part of a full assessment. For this reason, it cannot be guaranteed that the outcome of a full assessment process can be predicted with absolute accuracy. Further issues (leading to reduced scores) or further insights and clarifications (leading to increased scores) may arise with further scrutiny - not least when a full assessment is subject to public consultation. In some cases, a low score given at pre-assessment might be because no evidence has been found to support higher scores. This does not necessarily mean that such evidence does not exist.

This pre-assessment was desk-based, with a heavy reliance on information published on-line. For Principle 2, the lack of catch composition data, observer records, and other actual data from the fishery made evaluation of indicators possible at a general level only. Additionally, the scope for this particular pre-assessment was not sufficiently defined to provide preliminary scoring ranges for habitat and ecosystem performance indicators (PIs). For Principle 3 (P3), the complex nature of tuna fisheries management, involving different tiers of management.

International and national levels, made assigning specific scoring ranges a challenge, especially since MSC has provided limited guidance¹ on scoring across management tiers. We took what we considered a rigorous approach, evaluating P3 indicators by both coastal and flag states in addition to RFMOs, which may differ from approaches taken by other P3 assessors and conformity assessment bodies (CABs)

3.2 Version details

The report shall include a statement on the versions of the fisheries program documents used for this assessment.

Table 1 – Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	Version 2.3
MSC Fisheries Standard	Version 2.01
MSC General Certification Requirements	Version 2.5
MSC Pre-Assessment Reporting Template	Version 3.2

4 Unit(s) of Assessment

4.1 Unit(s) of Assessment

This pre-assessment covers Indian Ocean tuna longline source fisheries for Star Trading. The scope includes three stocks of three species (albacore, yellowfin, bigeye tuna). These vessels fish in the EEZ's of Seychelles, Mauritius and Madagascar and the high seas (FAO 51 and 57) of the Indian Ocean. In terms of regional management, there is one relevant regional fisheries management organization (RFMO): the Indian Ocean Tuna Commission (IOTC).

Table 2 – Unit(s) of Assessment (UoA)

UoA 1	Description
Species	<i>Thunnus albacares</i>
Stock	IO YFT
Geographical area	High seas (IOTC)
Harvest method / gear	Longline
Client group	Star Trading Ltd
Other eligible fishers	NA
Justification for choosing the Unit of Assessment	NA
UoA 2	Description
Species	<i>Thunnus alalunga</i>
Stock	IO ALB
Geographical area	High seas (IOTC)
Harvest method / gear	Longline
Client group	Star Trading Ltd
Other eligible fishers	NA
Justification for choosing the Unit of Assessment	NA
UoA 4	Description

Species	<i>Thunnus obesus</i>
Stock	IO BET
Geographical area	High seas (IOTC)
Harvest method / gear	Longline
Client group	Star Trading Ltd
Other eligible fishers	NA
Justification for choosing the Unit of Assessment	NA

5 Traceability

5.1 Traceability within the fishery

The report may include a description of the tracking, tracing and segregation systems within the fishery and how these systems will allow any products sold as MSC certified to be traced back to the Unit(s) of Assessment.

The report may include an evaluation of the robustness of the management systems related to traceability.

The report may include any traceability references, including hyperlinks to publicly available documents.

The report may include a description of the factors that may lead to risks of non-certified seafood being mixed with certified seafood prior to entering Chain of Custody using the table below. For each risk factor, there should be a description of whether the risk factor is relevant for the fishery and, if so, a description of the relevant mitigation measures or traceability systems in place.

Table 4 – Traceability within the fishery

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: - If this may occur on the same trip, on the same vessels, or during the same season. - How any risks are mitigated.	<i>Low risk - The vessels are only authorised to fish with longline gear and no other gears are held aboard the vessels. National legislation requires gear type identification on the licence documents. IOTC manages the fleet by gear type so there is no potential for vessels to use other fishing gear than what it specified in various licences. There are at sea inspections in place when a UoA vessel enters EEZ waters and some at sea inspection in high sea waters (although this is not frequent). Licencing is displayed on the public vessel registry.</i>
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: - If this may occur on the same trip. - How any risks are mitigated.	<i>Low risk - The vessels are licenced only to fish in the IOTC area of competence and all waters are covered by the UoAs detailed in this report</i>
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities. - Transport	<i>On board fishing vessels provided all the UoA are certified there will be no mixing of certified and non-certified stocks onboard the fishing vessels. As all catches of ALB, YFT and BET will be certified.</i>

- Storage - Processing - Landing - Auction If Yes, please describe how any risks are mitigated.	<i>The certified product is possibly transhipped with non-certified products on board carrier vessels, but the fish will be separated by nets and transshipment records will be kept accordingly. In addition, transshipment vessels have 100% observer coverage.</i>
Does transshipment occur within the fishery? If Yes, please describe: - If transshipment takes place at-sea, in port, or both; - If the transshipment vessel may handle product from outside the UoC; - How any risks are mitigated.	No.
Are there any other risks of mixing or substitution between certified and non-certified fish? If Yes, please describe how any risks are mitigated.	No.

6 Pre-assessment results

6.1 Pre-assessment results overview

6.1.1 Overview

Table 2a. Principle 1 scores.

PI	Performance Indicator	BET	YFT	ALB
1.1.1	Stock Status			
1.1.2	Stock Rebuilding		N/A	N/A
1.2.1	Harvest Strategy			
1.2.2	Harvest Control Rules and Tools			
1.2.3	Information / Monitoring			
1.2.4	Assessment of Stock Status			

Legend	< 60	60 – 79	≥ 80	Not scored
--------	------	---------	------	------------

Table 2b. Principle 2 scores.

Component	PI	Performance Indicator	Indian Ocean
Primary	2.1.1	Outcome	
	2.1.2	Management	
	2.1.3	Information	
Secondary	2.2.1	Outcome	
	2.2.2	Management	
	2.2.3	Information	
ETP	2.3.1	Outcome	
	2.3.2	Management	
	2.3.3	Information	
Habitats	2.4.1	Outcome	
	2.4.2	Management	
	2.4.3	Information	
Ecosystem	2.5.1	Outcome	
	2.5.2	Management	

	2.5.3	Information	
--	-------	-------------	--

Legend	< 60	60 – 79	≥ 80
--------	------	---------	------

Table 2d. Principle 3 approximate scores for RFMO, flag state, and coastal state management tiers.

PI	Performance Indicator	RFMO	Flag State	EEZ		
		IOTC	Malaysia	Seychelles	Mauritius	Madagascar
3.1.1	Legal and customary framework					
3.1.2	Consultation, roles and responsibilities					
3.1.3	Long term objectives					
3.2.1 *	Fishery specific objectives		N/A			
3.2.2 ^	Decision making processes					
3.2.3	Compliance and enforcement					
3.2.4 *	Management and performance evaluation					

* The overall score for PIs 3.2.1 and 3.2.4 would be ≥80 if the scoring methodology applied only assesses the RFMO management level. Some MSC-certified fisheries take this approach when the CAB considers the RFMO level is where the relevant fisheries management arrangements of the fishery are established.

^ In some MSC-certified fisheries, only the RFMO management level is assessed to score PI 3.2.2 SIs a, c, d and e. This approach is taken when the CAB considers the RFMO is where the relevant fisheries management arrangements of the fishery are established.

Interpretation of draft scoring ranges:

Fail < 60	Information suggests fishery is not likely to meet the SG60 for any scoring issue
Pass with condition 60 – 79	Information suggests fishery will reach SG60 but may not meet all scoring issues at SG80, a condition may be needed
Pass ≥ 80	Information suggests fishery is likely to exceed SG80 resulting in an unconditional pass for this Performance
	Indicator. Fishery may meet one or more scoring issues at SG100 level

6.1.2 Recommendations

If the CAB wishes to include any recommendations to the client or notes for future assessments, these may be included in this section.

The CAB shall inform the client of:

- Communications that may need to take place with management agencies, conservation groups, post-harvest sectors, relevant commercial and non-commercial fishing groups to explain the MSC assessment process and the implications (including costs and benefits) of certification.
- The types and extent of data and information that the client will need to make available for full assessment.
- The location, timing and form of any announcements to be made during full assessment.
- The optional MSC training information on the assessment process for clients.

Reference(s): FCP v2.1 7.1.8

6.2 Summary of potential conditions by Principle

Table 6 – Summary of Performance Indicator level scores

Principle of the Fisheries Standard	Number of PIs with draft scoring ranges <60
Principle 1 – Stock status	1
Principle 2 – Minimising environmental impacts	7
Principle 3 – Effective management	0

6.3 Summary of Performance Indicator level scores

The report shall include a completed 'summary of Performance Indicator level scores table below' and may include completed full scoring tables for Performance Indicators scored in sections 7.4 – 7.6. If the full scoring sections are not used, then they may be deleted. The report shall indicate if Performance Indicators were not assessed as part of the pre-assessment, and no score shall be provided.

When scoring the draft scoring ranges, the CAB shall use the following key to determine the result:

- Information suggests fishery is not likely to meet the SG60 for any scoring issue (Fail <60).
- Information suggests fishery will reach SG60 but may not meet all scoring issues at SG80, a condition may be needed (Pass with condition 60 – 79).
- Information suggests fishery is likely to exceed SG80 resulting in an unconditional pass for this Performance Indicator. Fishery may meet one or more scoring issues at SG100 level (Pass ≥80).

The CAB shall apply cell shading to the draft scoring range cells (e.g. ,60 = red, 60-79 = amber, green = ≥80, or similar).

Where scoring issues are referred to in the summary tables, scoring issues should be described using the language from the MSC Fisheries Standard.

Where relevant, comment should be provided on the implication of the individual Performance Indicator scores for the aggregate Principle scores. This may for example, identify whether there are many Performance Indicators within one Principle which are likely to raise conditions that may lead to the fishery failing to meet the MSC Fisheries Standard.

If a fishery is data-deficient and may need to use the MSC Risk-Based Framework (RBF), the CAB shall indicate this to the fishery (FCP v2.1 Table 3). If the RBF is expected to be used to score PI 1.1.1, no score needs to be provided for PI 1.1.2 and a default 80 score should be assigned to PI 1.2.4.

For performance indicators 1.1.1 (stock status), 2.1.1 (Primary species outcome), 2.2.1 (Secondary species outcome) and 2.3.1 (ETP outcome) a preliminary PSA should be conducted as described in FCR PF4, and the result recorded in the space provided in the table for the relevant PI.

For performance indicator 2.4.1 (Habitats outcome) a preliminary CSA should be conducted as described in FCR PF7, and the result recorded in the space provided in the table for this PI.

Table 7 – Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	60 – 79	No
Rationale or key points		

Stock status of BET in the IO is the only UoA which is not an unconditional pass.		
1.1.2 – Stock rebuilding	60 – 79	No
Rationale or key points		
BET not scoring 80 or over in PI1.1.1 triggers the need to score 1.1.2. This again received a conditional pass.		
1.2.1 – Harvest Strategy	< 60	No
Rationale or key points		
BET and ALB receives a conditional pass.		
1.2.2 – Harvest control rules and tools	60 – 79	No
Rationale or key points		
HCRs are an issue across three stocks with all receiving conditional passes.		
1.2.3 – Information and monitoring	≥ 80	No
Rationale or key points		
Scoring across all stocks were positive scoring unconditional passes for all.		
1.2.4 – Assessment of stock status	≥ 80	No
Rationale or key points		
Scoring across all stocks were positive scoring unconditional passes for all.		
2.1.1 – Primary species outcome	60 – 79	Yes
Rationale or key points		
Scoring across all stocks were positive scoring unconditional passes for all. However, due to lack of complete data set, we have precautionarily scored this as SG60-79.		
2.1.2 – Primary species management	60 – 79	Yes
Rationale or key points		
Scoring across all stocks were positive scoring unconditional passes for all. However, due to lack of complete data set, we have precautionarily scored this as SG60-79.		
2.1.3 – Primary information	< 60	Yes
Rationale or key points		

Scoring across all stocks were positive scoring unconditional passes for all. However, due to lack of complete data set, we have precautionarily scored this as SG60-79.		
2.2.1 – Secondary outcome	< 60	Yes
Rationale or key points		
Lack of data across the UoAs causes large issues in effective scoring of principle 2. Further information is required for more accurate scoring.		
2.2.2 – Secondary management	< 60	Yes
Rationale or key points		
Lack of data across the UoAs causes large issues in effective scoring of principle 2. Further information is required for more accurate scoring.		
2.2.3 – Secondary information	< 60	Yes
Rationale or key points		
Lack of data across the UoAs causes large issues in effective scoring of principle 2. Further information is required for more accurate scoring.		
2.3.1 – ETP outcome	< 60	Yes
Rationale or key points		
Lack of data across the UoAs causes large issues in effective scoring of principle 2. Further information is required for more accurate scoring.		
2.3.2 – ETP management	< 60	Yes
Rationale or key points		
Lack of data across the UoAs causes large issues in effective scoring of principle 2. Further information is required for more accurate scoring.		
2.3.3 – ETP information	< 60	Yes
Rationale or key points		
Lack of data across the UoAs causes large issues in effective scoring of principle 2. Further information is required for more accurate scoring.		
2.4.1 – Habitats outcome	≥ 80	No
Rationale or key points		
Scoring is aligned with all relevant MSC certified fisheries, pelagic longline does not interact with the habitat or ecosystem.		

2.4.2 – Habitats management	60 – 79	No
Rationale or key points		
Scoring is aligned with all relevant MSC certified fisheries, pelagic longline does not interact with the habitat or ecosystem.		
2.4.3 – Habitats information	60 – 79	No
Rationale or key points		
Scoring is aligned with all relevant MSC certified fisheries, pelagic longline does not interact with the habitat or ecosystem.		
2.5.1 – Ecosystem outcome	60 – 79	No
Rationale or key points		
Scoring is aligned with all relevant MSC certified fisheries, pelagic longline does not interact with the habitat or ecosystem.		
2.5.2 – Ecosystem management	≥ 80	No
Rationale or key points		
Scoring is aligned with all relevant MSC certified fisheries, pelagic longline does not interact with the habitat or ecosystem.		
2.5.3 – Ecosystem information	≥ 80	No
Rationale or key points		
Scoring is aligned with all relevant MSC certified fisheries, pelagic longline does not interact with the habitat or ecosystem.		
3.1.1 – Legal and customary framework	60 – 79	Yes
Rationale or key points		
Lack of information in Mauritius causes the largest issues through principle 3. Receiving a conditional pass for most PIs.		
3.1.2 – Consultation, roles, and responsibilities	60 – 79	Yes
Rationale or key points		
Lack of information in Mauritius and Madagascar scored a conditional pass for this PI.		
3.1.3 – Long term objectives	≥ 80	Yes
Rationale or key points		

All UoAs scored unconditional passes.		
3.2.1 – Fishery-specific objectives	≥ 80	Yes
Rationale or key points		
All UoAs scored unconditional passes.		
3.2.2 – Decision-making processes	60 – 79	Yes
Rationale or key points		
All coastal states received conditional passes for this PI.		
3.2.3 – Compliance and enforcement	60 – 79	Yes
Rationale or key points		
All UoAs, including that of the RFMO scored a conditional pass for this PI.		
3.2.4 – Monitoring and management performance evaluation	60 – 79	Yes
Rationale or key points		
Mauritius and Madagascar received conditional passes.		

6.4 Principle 1

6.4.1 Principle 1 background

Multiple tuna fisheries have been certified against the MSC Fisheries Standard, and harmonisation is required for full assessments. Thus, we examined MSC public certification reports to ensure scoring consistency with overlapping assessments. In addition, the International Seafood Sustainability Foundation (ISSF) provides scoring guidance resources for tuna fisheries, which we referred to. This pre-assessment follows the harmonised scoring except where additional information suggests that adjustments should be made. For some combinations of stock and PI, harmonisation is still in process.

Fishery resources and stock status

The catch of tropical tunas in the Indian Ocean has been taken by different methods, with the balance of gear types changing considerably over time. Improvements in technology and the intensity of pirate activity have been important factors in the diversity of fishing methods and effort distribution. Presently, fishing by distant water fleets using floating objects comprises around one third of the catch. It is also worth noting that in the last 30 years, the catch from the artisanal fisheries has fluctuated between 30 to 55% of the total catch.

Below we describe stock status and harvest management by species and stock.

Albacore tuna (*Thunnus alalunga*)

Albacore tuna (*Thunnus alalunga*) is a circumglobal, highly migratory species found throughout tropical, subtropical, and temperate regions of the world's oceans close to the mid-oceanic gyres (Labonne et al. 2022). Unlike the Atlantic and the Pacific, in the Indian Ocean, there is probably only one southern stock, distributed from 5°N to 40°S, because there is no northern gyre (IOTC 2017). It appears that juvenile albacore shows a continuous geographical distribution in the Atlantic and Indian oceans on the north edge of the subtropical convergence (Nikolic et al. 2014; Labonne et al. 2022). For stock assessment purposes, one pan-ocean stock has been assumed for the Indian Ocean (IOTC 2017) (IOTC 2022).

No new stock assessment was carried out for albacore in 2023, thus the stock status is determined on basis of the 2022 assessment. The stock assessment was carried out using Stock Synthesis III (SS3), a fully integrated model that is currently also used to provide scientific advice for the three tropical tunas stocks in the Indian Ocean. The model used in 2022 is based on the model developed in 2019 with a series of revisions that were noted during the WPTmT data preparatory meeting held in April 2022. There are some noticeable changes compared to the previous assessment data set, mainly related to how the fisheries are structured, and how the CPUE indices and length composition data are treated within the assessment model. The current assessment has utilised the new joint CPUE series that shows some differences compared with the last assessment. This is mainly related to changes in standardisation methodology, which were partly caused by limited operational data access for joint CPUE analysis. Compared to the last assessment, the CPUE index in the southwestern fishery (LL3) shows a somewhat flatter overall trend, the CPUE index in the northwestern fishery (LL1) also exhibited considerably larger variability. Further, the size composition data are significantly down-weighted within the assessment model, and length samples from fisheries other than longline fisheries are effectively given a zero weight. This is to reduce the bias that can be introduced by potentially unrepresentative or problematic length samples.

the stock status in relation to the Commission's interim BMSY and FMSY target reference points indicates that the stock is not overfished and is not subject to overfishing (Table 1). Outlook. The impacts of piracy in the western Indian Ocean resulted in the displacement of a substantial portion of longline fishing effort into the traditional albacore fishing areas in the southern and eastern Indian Ocean. However, in recent years the effort distribution in the Indian Ocean has been rather dynamic. Projections indicate that current catch appears to be sustainable in the short term although the projections are based on model assumptions that may be associated with high levels of uncertainty (see management advice below for more detail). It should be noted with caution that the short-term projections are more influenced by the recent low recruitment levels, whereas the longterm projections are more determined by the assumptions of average recruitment levels over the longer-term period. Management advice. Considerable uncertainty remains in the SS3 assessment conducted in 2022, particularly due to the conflicts in key data inputs, caution is therefore advised for the interpretation of the K2SM. The K2SM indicates that there is little risk of violating the target and limit reference points with current and moderate increases in catch in the short term. Current catches (46,625t for the statistical year 2022;) are just above the estimated level of MSY. There remains considerable uncertainty resulting from changes in the CPUE series which are not well understood, model instability in response to updated data, growth variability and poor fits to the size data. It should be noted that neither CPUE series or other model assumptions account for any change in catchability/effort creep over the time series.

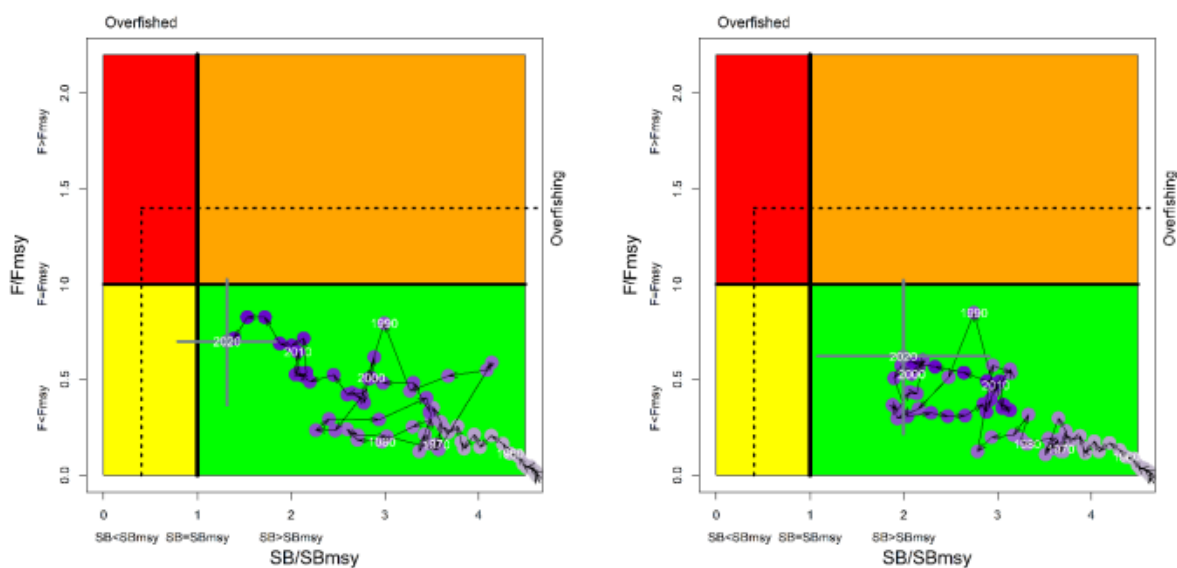


Figure 1. Albacore: SS3 Indian Ocean assessment Kobe plot for the two model options considered: (i) Model fitted to the North-western CPUE; (ii) Model fitted to the South-western CPUE. Purple circles indicate the trajectory of the point estimates for the spawning biomass (SB) ratio and fishing mortality (F) ratio for each year 1950–2020 (the grey lines represent the 95 percentiles of the 2020 estimate). Target (F_{target} and SB_{target}) and limit (F_{lim} and SB_{lim}) reference points are

Bigeye tuna (*Thunnus obesus*)

Bigeye tuna (*Thunnus obesus*) is a highly migratory species that inhabits the epipelagic zone down to around 300 m of tropical and subtropical marine waters distributed throughout the three major oceans where it forms large schools, and often juveniles are associated with floating objects (IOTC 2017). The evidence of rapid and large-scale

movements of juvenile bigeye tuna in the Indian Ocean reported by the Regional Tuna Tagging Project-Indian Ocean (RTTP-IO) supports the assumption of a single stock of bigeye tuna population within the Indian Ocean (Murua et al. 2015; IOTC 2017; Artetxe-Arrate et al. 2021).

No new stock assessment was carried out for bigeye tuna in 2023 and so the advice is based on the 2022 assessment. In the 2022 assessment, two models were applied to the bigeye stock (Statistical Catch at Size (SCAS) and Stock Synthesis (SS3)), with the SS3 stock assessment selected to provide scientific advice. The reported stock status is based on a grid of 24 model configurations designed to capture the uncertainty on stock recruitment relationship, longline selectivity, growth and natural mortality. Spawning biomass in 2021 was estimated to be 25% (80% CI: 23-27%) of the unfished levels and 90% (75- 105%) of the level that can support MSY. Fishing mortality was estimated at 1.43 (1.1-1.77) times the FMSY level. Considering the characterized uncertainty, the assessment indicates that SB2021 is below SBMSY and that F2021 is above FMSY (79%). On the weight-of-evidence available in 2022, the bigeye tuna stock is determined to be overfished and subject to overfishing. As IOTC agreed on a bigeye Management Procedure (Res. 22/03) it should be noted that the stock assessment is not used to provide a recommendation on the TAC. Management Procedure. A management procedure for Indian Ocean Bigeye tuna was adopted under Resolution 22/03 by the IOTC Commission in May 2022 and was applied to determine a recommended TAC for Bigeye tuna for 2024 and 2025. A review of evidence for exceptional circumstances, was also conducted following the adopted guideline (ref SC 2021 report appendix 6A) as per the requirements of Resolution 22/03. The review covered information pertaining to i) new knowledge about the stock, population dynamics or biology, ii) changes in fisheries or fisheries operations, iii) changes to input data or missing data, and iv) inconsistent implementation of the MP advice. The evaluation concluded that there were no exceptional circumstances requiring either further research or management action on the TAC calculated by the MP. Application of the MP in 2022 results in a recommended TAC of 80,583t per year for 2024 and 2025. Outlook. Catch in 2021 (94,803 t) and catch in 2022 (102,266 t) of bigeye tuna were above the recommended TAC for 2024 and 2025 from the application of the bigeye tuna MP. Achieving the objectives of the Commission for this stock will require effective implementation of the MP TAC advice by the Commission going forward, a requirement further emphasised by the current status of the stock estimated from the stock assessment to be overfished and subject to overfishing. Management advice. The TAC recommended from the application of the MP specified in Resolution 22/03 and Resolution 23/04 is 80,583t / year for the period 2024-2025. The recommended TAC is 15% below the 2021 catch (this is constrained by the maximum TAC change).

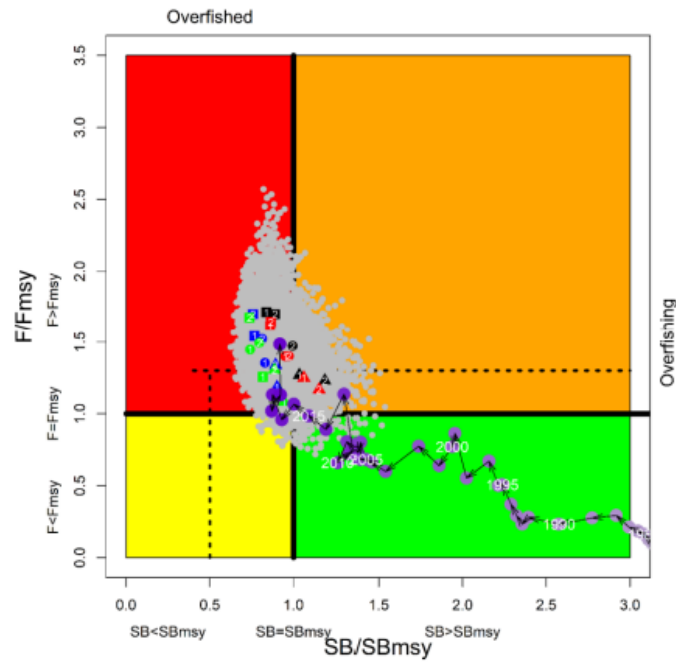


Figure 2. . Bigeye tuna: SS3 Aggregated Indian Ocean assessment Kobe plot. The coloured points represent stock status estimates from the 24 model options. Coloured symbols represent Maximum posterior density (MPD) estimates from individual models: square, circle, and Triangles represents alternative steepness options; black, red, blue, and green represents alternative growth and natural mortality option combination; 1,2, represents alternative selectivity 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 ($SB_{lim} = 0.5 SB_{MSY}$ and $F_{lim} = 1.4 F_{MSY}$).

Yellowfin tuna (*Thunnus albacares*)

Yellowfin tuna (*Thunnus albacares*) is a highly migratory species that inhabits the epipelagic zone of tropical and subtropical marine waters distributed throughout the three major oceans where it forms large schools, often associated with floating objects (IOTC 2023). The evidence of fast and large movements of yellowfin tuna reported by the Regional Tuna Tagging Project-Indian Ocean (RTTP-IO) supports the assumption of a single well-mixed yellowfin tuna population within the Indian Ocean (Murua et al. 2015; IOTC 2017; Artetxe-Arrate et al. 2021). It is then assumed to be a single Yellowfin Tuna stock in the Indian Ocean. Nevertheless, genetic differentiations (Dammannagoda et al. 2008), otolith microchemistry nursery areas separation (Artetxe-Arrate et al. 2019) or even stock differentiation based on fisheries data (Nishida 1992) have also been found within the north-western area and between eastern and western areas of the Indian Ocean, suggesting the presence of sub-populations in this region (IOTC 2023).

The status of yellowfin tuna has been assessed using different approaches. In 2015 Stock Synthesis was used for the first time and estimated that the stock was overfished and overfishing was taking place and an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock was adopted and later revised. Iterations in years 2016 and

2018 attempted the use of alternative approaches to produce new CPUE abundance indices and the main assumptions were also revised. In these assessments the biomass was estimated again to be under SSBMSY and fishing mortality above FMSY therefore the stock was considered to continue being overfished and overfishing still was happening. The assessment conducted in 2021 used SSIII once again, used a standardized CPUE index from the main longline fleet and included indices from the EU purse-seine fleet and an index from the Maldivian pole and line fishery. Alternative versions of the model were prepared to address different issues in the data, to improve the stability of the model and to explore the effects of alternative assumptions. The results did not differ from those obtained in the 2018 assessment. An external review of this assessment was conducted in 2023 providing recommendations for the next assessment. The latest assessment continues to use Stock Synthesis III and an age-structured spatially-explicit population model fit to catch data from 1950 to 2023, CPUE abundance indices, length compositions and tagging data. This assessment is an updated version of the 2021 iteration which included recommendations from the 2023 review. The model assumes a single spawning stock in the Indian Ocean but considered 21 fisheries and four disaggregated regions, in each of which a standardized joint CPUE index was obtained from the main longline fleets from 1975-2023 which significantly informed the assessment model. The new index differed from the one used in the 2021 assessment particularly in the northwestern region from 2005 to 2015 and 2019 and 2020. The longline index also shows a increase in abundance from 2021 to 2023 (Figure 8). CPUE from the EU purse-seine fleet fishing on free schools of fish were included in a subset of models, and indices based on the associative and non-associative dynamics of yellowfin tuna were also considered and their usefulness evaluated. Tag release and recovery data provided some information on abundance, movements and mortality rates. Alternative assumptions regarding changes in the efficiency of the longline fleet were included to account for effort creep. Parameters of growth and natural mortality were revised.

A synthesis of the current status of YFT in the Indian Ocean is included in Appendix VI and is represented in the following table (IOTC 2024c). Past assessments estimated that the probability that the stock was in the red zone was 94% in 2015, declining to 67.6% in 2016 and 67% in 2021. Results of the 2024 assessment are significantly different from those in previous assessments, and the probability that the stock is in the red zone is now estimated to be just 7.9%. Spawning biomass in 2023 is also now estimated to be 32% higher than SBMSY and fishing mortality was estimated to be 25% lower than FMSY. The probability that the stock is in the green area of the Kobe quadrant was estimated to be close to 89%, therefore it was concluded that the stock of yellowfin tuna in the Indian Ocean currently is not overharvested and not subject to overfishing. It is also estimated that if catches continue to be within the range of MSY (416,000 to 430,000 t), there is more than 50% probability that the stock will remain above the estimated level SBMSY.

Area ¹	Indicators		2024 stock status determination ³
Indian Ocean	Catch 2023 ² (t)	400,950	89%*
	Mean annual catch 2019-2023 (t)	423,142	
	MSY _{recent} ⁴ (1,000 t) (80% CI)	421 (416-430)	
	F _{MSY} (80% CI)	0.2 (0.16-0.26)	
	SB _{MSY_recent} (1,000 t) (80% CI)	1,063 (890-1,361)	
	F ₂₀₂₃ / F _{MSY} (80% CI)	0.75 (0.58-1.01)	
	SB ₂₀₂₃ / SB _{MSY_recent} (80% CI)	1.32 (1.00-1.59)	
	SB ₂₀₂₃ / SB ₀ (80% CI)	0.44 (0.40-0.50)	

¹Boundaries for the Indian Ocean stock assessment are defined as the IOTC area of competence

²Proportion of 2023 catch fully or partially estimated by IOTC Secretariat: 33.4%

³2023 is the final year that data were available for this assessment

⁴Recent refers to the most recent 20 years

Colour key	Stock overfished (SB ₂₀₂₀ / SB _{MSY} < 1)	Stock not overfished (SB ₂₀₂₀ / SB _{MSY} ≥ 1)
Stock subject to overfishing (F ₂₀₂₃ / F _{MSY} ≥ 1)	7.9%	3.3%
Stock not subject to overfishing (F ₂₀₂₃ / F _{MSY} ≤ 1)	0%	88.8%
Not assessed / Uncertain / Unknown		

Figure 1 – Stock information (IOTC, 2024)

6.4.2 Catch profiles

Table 8: Stock status relative to reference points			
	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (Sla)	ALB LRP: 75% B _{MSY}	20,050t	2.1
	BET Interim LRP: 50% SB _{MSY}	SB _{MSY} = 526,000 t LRP = 263,000 t SB ₂₀₁₈ = 668,000 t	SB ₂₀₁₈ /LRP = 2.54
	YFT SBLIMIT FLIM	0.40 SB _{MSY} = 425.2 1.4 F _{MSY} = 0.28	SB ₂₀₂₃ /SBLIM = 3.3 F ₂₀₂₃ /FLIM = 0.54
Reference point used in scoring stock relative to MSY (Sib)	ALB TRP: B _{MSY}	2,700 t	B ₂₀₁₄ /TRP = 1.6
	TRP: SB _{MSY}	SB _{MSY} = 513,000 t SB ₂₀₂₁ = 450,000 t	SB ₂₀₂₁ /SB _{MSY} = 0.90
	YFT TRP: SB _{TARGET} =SB _{MSY} (in thousands of t) FT _{TARGET} =F _{MSY}	SB _{MSY} =1,063 (890-1,361) F _{MSY} =0.2 (0.16-0.26 80% CI)	SB ₂₀₂₃ / SB _{MSY_recent} = 1.32 (1.0-1.59) F ₂₀₂₃ / F _{MSY} = 0.75 (0.58-1.01)

	MSYRECENT (in thousands of t; recent means the most recent 20 years)	MSYRECENT =421 (416-430)	Catch2023 = 400.95 Mean annual catch 2019-2023 = 423.14
--	--	--------------------------	--

6.4.3 Principle 1 Performance Indicator scores and rationales

In the Performance Indicator scoring tables, the report may include sufficient rationale for each Scoring Issue or for each Performance Indicator and should make reference to Scoring Guideposts (SG). References may be included in the form of hyperlinks, citations or by providing the quantitative information. The report should identify if there are information gaps.

For any Performance Indicator for which scoring is not required or a default score is applied, this should be recorded in the relevant scoring table.

If the Risk-Based Framework (RBF) has been used to score a Performance Indicator, the report should include a justification for use and the relevant RBF outputs table may include scores and rationales.

Additional scoring tables may be used and should be clearly marked for modified assessment trees e.g. PI 2.5.2 - Modified.

PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is likely that the stock is above the point where recruitment would be impaired (PRI).	It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.
	Met?	ALB: Yes BET: Yes YFT: Yes	ALB: Yes BET: Yes YFT: Yes	ALB: Yes BET: Yes YFT: Yes

ALB

Based on the 2022 stock assessment, the stock was classified as not being overfished ($B_{2020} = 156\%BMSY$; $80\%CI$ 89%-224%), with overfishing not occurring ($F_{2020} = 68\%FMSY$; $80\%CI$ 42%-94%). The assessment estimates that the stock has been on the right side of MSY reference point (in the green zone of the Kobe plot) throughout the time series – a contrast to the conclusions of the previous assessment in 2019 which considered that the stock was subject to overfishing. The final model outputs estimate that F_{2021} has been below $FMSY$ with greater than 95% probability, but B_{2021} was above $BMSY$ with around 95% probability (lower 95% CI overlapping the $BMSY$ to some degree). Since the stock is at a level consistent with MSY , SG80 is met. SG100 requires that the stock is at or above this level over recent years with high confidence. The stock is both above the MSY level and fishing mortality below the MSY level with high confidence and this has been true through the time series, so SG100 is met.

BET

The 2022 stock assessment results (model ensemble) suggested the stock is above the limit reference point of 0.50 BMSY (SB2021/SBMSY = 0.90; estimates ranged from 0.75–1.05), and that overfishing is occurring (F2021/FMSY =1.43; estimates ranged from 1.10–1.77; IOTC SC 2022). Following MSC GSA2.2.3.1, 50% BMSY can be considered a default PRI. Since the lower bound of the SB2018/SBMSY range is greater than 0.50, the stock appears to be above the PRI with a high degree of certainty, meeting SG100.

YFT

The MSC fisheries standard requires at the SG80 and SG100 level that either the stock is highly likely to be above the PRI or there is a high degree of certainty that it is above the PRI. The IOTC defined that the biomass limit reference point for this fishery is 0.4 BMSY, which the SA team is assuming to be equivalent to the PRI for YFT, noting that 0.4 BMSY is still consistent with the MSC interpretation of a PRI to be “the point below which there is an increased risk that recruitment may be substantially impaired”. Also, it is noted that this value is slightly lower than the MSC default of 0.5 BMSY for stocks where the limit reference point has not been analytically obtained.

Panel C in Figure 9 shows the estimated trend in biomass relative to BMSY under a series of assumptions represented in alternative model scenarios, noting that under the least optimistic scenario the estimated abundance has never been at or below 0.5 BMSY. Furthermore, the estimated abundance trend and stock status in the 2024 assessment are more optimistic than those obtained in the 2018 and 2021 assessment (Fu et al. 2018; Fu et al. 2021), but in all cases there appears to be zero probability that the stock is under 0.5 BMSY. The Kobe quadrant in Appendix VI indicates there is a combined probability that the stock is under BMSY and above FMSY of 7.9%. The team concluded that if the last three assessments with all their caveats an even in the least optimistic scenarios the stock has a probability lower than 5% to be under 0.5 BMSY, then the fishery meets the requirements at both SG80 and SG100.

Stock status in relation to achievement of Maximum Sustainable Yield (MSY)				
b	Guide post		The stock is at or fluctuating around a level consistent with MSY.	There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		ALB: Yes BET: No YFT: Yes	ALB: Yes BET: No YFT: No

Rationale

ALB

Based on the 2022 stock assessment, the stock was classified as not being overfished ($B_{2020} = 156\%BMSY$; 80%CI 89%-224%), with overfishing not occurring ($F_{2020} = 68\%FMSY$; 80%CI 42%-94%). The assessment estimates that the stock has been on the right side of MSY reference point (in the green zone of the Kobe plot) throughout the time series – a contrast to the conclusions of the previous assessment in 2019 which considered that the stock was subject to overfishing. The final model outputs estimate that F_{2021} has been below $FMSY$ with greater than 95% probability, but B_{2021} was above $BMSY$ with around 95% probability (lower 95% CI overlapping the $BMSY$ to some degree). Since the stock is at a level consistent with MSY, SG80 is met. SG100 requires that the stock is at or above this level over recent years with high confidence. The stock is both above the MSY level and fishing mortality below the MSY level with high confidence and this has been true through the time series, so SG100 is met.

BET

The 2022 stock assessment results (model ensemble) suggested the stock is below the MSY level ($SB_{2021}/SBMSY = 0.90$; estimates ranged from 0.75–1.05), and that overfishing is occurring ($F_{2021}/FMSY = 1.43$; estimates ranged from 1.10–1.77; IOTC SC 2022) (Fu et al. 2022). SG80 is not met.

YFT

The MSC fisheries standard requires at the SG80 and SG100 level that either the stock is at or fluctuating at a level consistent with MSY or there is a high degree of certainty that it has been fluctuating around a level consistent with MSY or has been above this level over recent years. Results of the recent stock assessment indicate the estimated trends of abundance under alternative model assumptions, for the last 20 years, the stock has been fluctuating around the estimated abundance producing MSY (see Figure 9(C)). This pattern is more evident in the trend for the reference model in the 2024 assessment, which also shows an increase in abundance in the latest years that are consistent with the observed trend in the longline CPUE.

The Guidance to the Fisheries Certification Requirements presents the example (p 375) that an “instantaneous estimate of current stock status that is not less than 90% $BMSY$ ” can be regarded as evidence that the stock is fluctuating around a level consistent with MSY and can meet the requirements at SG80. The Guidance also warns that the 90% level is only presented to illustrate criteria to meet the requirements at SG80 and that teams should assess the fishery based on the criteria of fluctuation around $BMSY$. In the case of the YFT in the Indian Ocean, the instantaneous estimate of stock status for the last four years places biomass above the estimated $BMSY$, making it possible to conclude that at least, the stock is fluctuating around a level consistent with MSY and the fishery meets the requirements at SG80. To determine if there is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY, the Guidance suggests that as examples, either the median or mean stock abundance has been at a level not less than 90% $BMSY$ over the last two generation times. Alternatively, estimates of abundance placing abundance above the estimated $BMSY$ in all years at least one generation time can be appropriate evidence to support the conclusion that the fishery meets the requirements at SG100. In the case of the YFT in the Indian Ocean, there is still substantial uncertainty associated to the current stock status and the latest assessments may place it either above or below $BMSY$. It is acknowledged that improvements in the performance of the last assessment methodology led to more optimistic results than in the previous iterations, however, the team

considered that the assessment methodology is still in the process of resolving important uncertainties and may prevent a conclusion on high degree of certainty, therefore SG100 is not met yet.

Overall Performance Indicator (PI) Rationale

Draft scoring range	ALB: ≥ 80 BET: 60 – 79 YFT: ≥ 80
Information gap indicator	Information sufficient to score PI
Data-deficient? (Risk-Based Framework needed)	No

PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide post	A rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed one generation time for the stock.
	Met?	ALB: NA BET: Yes YFT: NA		ALB: NA BET: No YFT: NA
Rationale ALB The stock is not depleted. Therefore, under MSC Fisheries Standard guidelines, this PI need not be scored for albacore. BET GSA2.3.2 – GSA2.3.3 Timeframes for achieving conditions states: “Teams should note that stocks that trigger rebuilding may be allowed one year to put rebuilding strategies and monitoring in place.” While the fishery assessment was completed at the time the IOTC Scientific Committee confirmed the overfished status for IO BET, the team is giving the fishery a year to address this SI. The score will remain not applicable for now. That said, catch in 2021 (94,803 t) of bigeye tuna is above the recommended TAC for 2024 and 2025 from the application of the bigeye tuna MP. The IOTC will need have effective implementation of the MP in order to rebuild the stock, noting the MP does contain mechanisms for controlling catches meeting SG60 but not 100. YFT The stock is not depleted. Therefore, under MSC Fisheries Standard guidelines, this PI need not be scored for yellowfin.				

	Rebuilding evaluation
--	-----------------------

b	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding stocks, or it is likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	There is strong evidence that the rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.
	Met?	ALB: NA BET: Yes YFT: NA	ALB: NA BET: No YFT: NA	ALB: NA BET: No YFT: NA

Rationale

ALB

The stock is not depleted. Therefore, under MSC Fisheries Standard guidelines, this PI need not be scored for albacore.

BET

As for PI 1.1.12a. FMSY is currently being exceeded, so SG 80 cannot be met.

YFT

The stock is not depleted. Therefore, under MSC Fisheries Standard guidelines, this PI need not be scored for yellowfin.

Overall Performance Indicator (PI) Rationale

Draft scoring range	ALB: NA BET: 60 – 79 YFT: NA
Information gap indicator	Information sufficient to score PI

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide post	The harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	ALB: Yes BET: Yes YFT: Yes	ALB: No BET: No YFT: Yes	ALB: No BET: No YFT: Yes

Rationale

MSC defines a harvest strategy as ‘The combination of monitoring, stock assessment, harvest control rules and management actions, which may include an MP or an MP (implicit) and be tested by MSE’. For all of these stocks, the IOTC harvest strategies currently include:

- Data collection on the stock and fishery (described further in PI 1.2.3 below)
- Stock assessment (described further in PI 1.2.4 below)
- Limit reference points, and in some cases, interim target reference points (described in PI 1.1.1 above)
- Harvest control rules that are ‘available’ or in place (described further in PI 1.2.2 below)
- Management strategy evaluations for evaluate harvest control rules in certain managed species (described further in PI 1.2.2 below)

Harvest strategy details and scoring rationales are provided below, by stock.

ALB

The harvest strategy objective of IOTC in relation to Indian Ocean albacore tuna is to maintain stock levels at or above the biomass which would produce MSY. This was established as an interim threshold reference point under Res. 15/10. The harvest strategy is based on a system of feedback based on stock assessments every 3 years which evaluate stock status, provide management advice and evaluate management performance. The scientific advice is based on a data collection, which is formally envisaged under Res. 15/01 and has been formulated relative to a harvest strategy using MSY reference points. This part of the harvest strategy is responsive to that state of the stock and to limit and target reference points used for albacore. The status of exploitation from 2022 stock assessment shows a level of fishing mortality below FMSY, therefore the HS is expected to achieve stock management objectives reflected in PI 1.1.1 SG80, meeting SG60. However, a formal harvest control rule is not in place, and it is not clear that catch reduction in 2021 was due to any particular management action. The big

increase observed in 2022, with the second highest level of catches, does not suggest the fishery is under tight management control. Although reductions in fishing effort had been recommended by scientific committee for a number of years, no such reduction seems fully implemented and capacity reduction initiatives are effective only for EU fleets (see STECF 2022), suggesting that the system is slow to respond for this stock and that not all the elements of the HS are working together. Therefore, in its current form, there is significant uncertainty that the harvest strategy will be fully effective in the longer term and SG80 is not met.

BET

The IOTC adopted Resolution 22/03 On a Management Procedure for Bigeye Tuna in the IOTC Area of Competence “with a view of maintaining the stock biomass in the green zone of the Kobe plot (not overfished and not subject to overfishing) whilst maximising the average catch from the fishery and reducing the variation in the total allowable catch (TAC) between management periods”. The IOTC harvest strategy for IO bigeye aims to maintain stock levels at or above BMSY, using regular stock assessments and management actions such as catch limits, management of FADs (Resolution 19/02). BMSY was set as the interim target reference point under IOTC Resolution 15/10. The first TAC derived from the Management Procedure (MP) shall apply in 2024 and 2025. Since the harvest strategy is expected to achieve stock management objectives, SG60 could be met. That said, there is no ability of the management system to control catches. Resolution 21/01 requires “The Commission will develop a mechanism to constrain catch to the MP derived TAC for bigeye tuna no later than 2025, if an allocation scheme has not yet been agreed and implemented by the Commission.” Due to the current high catches, the stock is expected to be in an overfished state in 2021 (IOTC SC 2021), and overfishing is already taking place ($F > F_{MSY}$), therefore the current management system cannot rebuild and maintain stock at the target level ($B > B_{MSY}$, F_{MSY}). The next stock assessment is taking place in October 2022. Further, it is not apparent that the harvest strategy is fully responsive to the status of the stock. SGs 80 and 100 are not met.

YFT

The Agreement for the Establishment of the Indian Ocean Tuna Commission (IOTC) is the document providing structure and guidance about the goals and duties of Commission and Members and Associate Members of FAO, including participating parties (from now on referred to as the Contracting Parties to the Commission or CPC), Cooperating Non-Contracting Parties and Non-Contracting Parties. The Commission is established within the framework of the United Nations FAO (FAO 1993). The first objective of the IOTC is to promote cooperation among Members for the conservation and optimum utilization of the stocks under the reach of the Agreement. The second objective includes among other things, the monitoring of conditions and trends of stocks and to analyse and distribute fishery related information; to promote research; to utilise the results of research to adopt conservation and management measures towards the optimum use of the stocks. The third objective presents the possibility for the Commission to adopt decisions and recommendations to achieve the objectives of the Agreement. In accordance with the provisions of Article IX, paragraph 1 of the IOTC Agreement, the following is in place: • Each flag CPC shall ensure that all purse seine, longline, gillnet, pole and line, handline and trolling fishing vessels flying its flag and authorised to fish species managed by IOTC be subject to a data recording system. • The measure shall apply to all purse seine, longline, gillnet, pole and line, handline and trolling fishing vessels over 24 metres length overall and those under 24 metres if they fish outside the EEZs of their flag States within the IOTC area of competence. • All vessels shall keep a bound paper or electronic logbook to record data that includes operational, catch and effort information. The Flag State shall provide all the data for any given year to the IOTC Secretariat by June 30th of the following year on an aggregated basis. Further, following Resolution 15/02 Contracting Parties and

Cooperating Non-Contracting Parties (CPCs) shall provide the following information to the IOTC Secretariat: • Total catch data: Estimates of the total catch by species and gear, if possible quarterly, that shall be submitted annually (separated, whenever possible, by retained catches in live weight and by discards in live weight or numbers) for all species under the IOTC mandate • Catch and effort data: for example, for longline fisheries catch by species, in numbers or weight, and effort as the number of hooks deployed shall be provided by 5° grid area and month strata. Documents describing the extrapolation procedures (including raising factors corresponding to the logbook coverage) shall also be submitted routinely. For the work of relevant working parties under the IOTC Scientific Committee, longline data should be of a resolution of 1° grid area and month or finer. The collection of scientific data is done by observers (Rec 11/04) who monitor at least 5 % of the number of operations/sets for each gear type by the fleet of each CPC while fishing in the IOTC area of competence of 24 meters overall length and over.

Observers: a) Record and report fishing activities, verify positions of the vessel; b) Observe and estimate catches as far as possible with a view to identifying catch composition and monitoring discards, by-catches and size frequency; c) Record the gear type, mesh size and attachments employed by the master; d) Collect information to enable the cross-checking of entries made to the logbooks (species composition and quantities, live and processed weight and location, where available); and e) Carry out such scientific work (for example, collecting samples), as requested by the IOTC Scientific Committee. In Resolution 12/01 the IOTC agrees to apply the precautionary approach, in accordance with relevant internationally agreed standards, in particular with the guidelines set forth in the UNFSA, and to ensure the sustainable utilization of fisheries resources as set forth in Article V of the IOTC Agreement. Regular stock assessments are performed and therefore monitoring is in place that is expected to determine whether the harvest strategy is working. Resolution 15/10 (IOTC 2015a) has set interim target (BMSY and FMSY) and limit (BLIM = 0.40 BMSY and FLIM = 1.40 FMSY) reference points for YFT and 19/01 (IOTC, 2019b) determines the cuts of catches of the 2014 catch level, therefore the harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1 SG80. The overall effect, therefore, of Resolutions 12/01 and 15/10 and 19/01 is to provide interim elements of the harvest strategy that are intended to ensure that the stock is maintained around the target reference points (BMSY and FMSY), implying the intention of Resolutions 12/01, 15/10 and 19/01 to be consistent with appropriate management and therefore SG60 is met. In 2018 Resolution 18/01 presented an interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence. This Resolution applies to stocks that have been determined in a stock assessment to be placed in the red quadrant of the Kobe Plot and aims to end overfishing with a high probability, rebuilding biomass in as short time as possible. In 2018, Resolution 18/01 aimed to restore by 2024 the YFT stock in the Indian Ocean to levels above the interim target reference point with a probability of 50%. This resolution included measures for purse seiners such as reductions in catch, limits on the number of FADs operated, reductions and restrictions on the operation of supply vessels. The stock assessment of 2024 (Utizborea et al. 2024; IOTC 2024c) estimated that the spawning biomass of YFT in the Indian Ocean was 32% above the level producing MSY, while fishing mortality was estimated to be 75% of the level producing MSY. The catch in 2023 was 5% lower than the MSY value for the most recent 20 years. Because the estimated stock status in 2023 is consistent with the goal established in 2018 in Resolution 18/01, the harvest strategy can be considered to be responsive to the state of the stock and the evidence indicates that monitoring and stock assessments led to conservation and management decision leading to recover the stock to MSY based reference points, therefore, the elements of the harvest strategy are considered to work together towards achieving stock management objectives reflected in PI 1.1.1, SG80 is met. Because, in addition to the strategy being responsive to the state of the stock, it was designed to respond in a way to meet MSY based management objectives, the concluded that the fishery meets SG100.

b	Harvest strategy evaluation			
	Guide post	The harvest strategy is likely to work based on prior experience or plausible argument.	The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	ALB: Yes BET: No YFT: Yes	ALB: No BET: No YFT: Yes	ALB: No BET: No YFT: No

Rationale

ALB

Based on the last stock assessment, the stock status seems not overfished and the exploitation in term of fishing mortality is below MSY level. 2022 catches are slightly above the estimate of MSY, but within the range of uncertainty. Since the improvement in the perception of stock status is a function of changes to the assessment, not to the fishery, it has yet to be shown that the management system is able to maintain the stock at the target level ($B > B_{MSY}$, $F < F_{MSY}$) in all circumstances. Although in general terms the current strategy will likely work (overfishing has been detected for example and catch reductions proposed), meeting SG60, evidence that it will work is still lacking, so SG80 cannot be met.

BET

The IO BET stock is subject to overfishing and is overfished (IOTC SC 2022). This indicates the current harvest strategy may not be adequate to maintain the stock at the MSY level, so the harvest strategy is not working or achieving its objective considering the poor management of catches. The IOTC adopted Resolution 22/03 On a Management Procedure for Bigeye Tuna in the IOTC Area of Competence, however the first TAC derived from the Management Procedure shall apply in 2024 and 2025. While the harvest strategy is expected to achieve stock management objectives, previous experience within the IOTC, as outlined for IO YFT indicates the harvest strategy would not be likely to work, especially there is no ability of the management system to control catches. SG60 is therefore not met.

YFT

At the SG60 level, SIb requires that the harvest strategy is likely to work based on prior experience or plausible argument, whereas at SG80, even if not fully tested, evidence is required to exist that the harvest strategy is achieving its objectives. The overall effect of Resolutions 12/01, 15/10, 18/01, 19/01, 21/01 and 23/03 is to provide interim elements of the harvest strategy that are intended to ensure that the stock is maintained around the target reference points (B_{MSY} and F_{MSY}), implying the intention of Resolutions 12/01, 15/10 and 19/01 to be consistent with appropriate management. Resolution 15/10 has set interim target (B_{MSY} and F_{MSY}) and limit ($BLIM = 0.40 B_{MSY}$ and $FLIM = 1.40 F_{MSY}$) reference points for YFT and 19/01 determines the cuts of catches of the 2014 catch level. Therefore, the harvest strategy is likely to work based on plausible argument and SG60 is met. The

stock assessment of 2024 (Utizberea et al. 2024; IOTC 2024c) estimated that the spawning biomass of YFT in the Indian Ocean was 32% above the level producing MSY, while fishing mortality was estimated to be 75% of the level producing MSY. The catch in 2023 was 5% lower than the MSY value for the most recent 20 years. Therefore, the harvest strategy which has not been fully tested, but the evidence indicates that it is achieving its objectives and meets SG80 but does not meet SG100.

Harvest strategy monitoring				
C	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	ALB: Yes BET: Yes YFT: Yes		

Rationale

ALB

Monitoring is adequate to determine whether the harvest strategy is working. Indicators are regularly estimated and reported by the relevant Working Party (see: IOTC WPTmT, 2022), including catches and stock status indicators (IOTC, 2022). In addition, there is a regular external RFMO review which looks at issues relevant to the harvest strategy (e.g.: IOTC PR, 2015). Therefore, SG60 is met for all stocks.

BET

Monitoring is adequate to determine whether the harvest strategy is working. Indicators are regularly estimated and reported by the relevant Working Party (see: IOTC WPTmT, 2022), including catches and stock status indicators (IOTC, 2022). In addition, there is a regular external RFMO review which looks at issues relevant to the harvest strategy (e.g.: IOTC PR, 2015). Therefore, SG60 is met for all stocks.

YFT

Monitoring is adequate to determine whether the harvest strategy is working. Indicators are regularly estimated and reported by the relevant Working Party (see: IOTC WPTmT, 2022), including catches and stock status indicators (IOTC, 2022). In addition, there is a regular external RFMO review which looks at issues relevant to the harvest strategy (e.g.: IOTC PR, 2015). Therefore, SG60 is met for all stocks.

Harvest strategy review				
d	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			ALB: No BET: No

				YFT: No
Rationale				
ALB				
There is no evidence of any formal review of the harvest strategy (HS) in relation to albacore tuna. Performance reviews have been conducted on RFMO, but these have focused on the wider issues (compliance, funding, CPC participation) rather than on the albacore HS and SG100 is not met.				
BET				
There is no evidence of any formal review of the harvest strategy (HS) in relation to bigeye tuna. Performance reviews have been conducted on RFMO, but these have focused on the wider issues (compliance, funding, CPC participation) rather than on the albacore HS and SG100 is not met.				
YFT				
There is no evidence of any formal review of the harvest strategy (HS) in relation to yellowfin tuna. Performance reviews have been conducted on RFMO, but these have focused on the wider issues (compliance, funding, CPC participation) rather than on the albacore HS and SG100 is not met.				

e	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	NA	NA	NA
Rationale				
Target species is not a shark therefore NA.				

f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	NA	NA	NA
Rationale				
Target species Unwanted catch is defined by MSC as catch which is unwanted and not used (i.e., not sold or consumed). Under P1 it refers only to unwanted catch of the target species. A joint meeting of the tuna Regional				

Fisheries Management Organisations (tRFMOs) in Brisbane 2010 as part of the Kobe process, specifically focused on bycatch and discarding, although this mainly dealt with non-tuna species. Discards are routinely estimated for all target species where possible but discarding of target tunas is not generally considered significant compared to other mortality and low compared to other fisheries (Gilman et al. 2020). Therefore, the present SI is not scored.

Overall Performance Indicator (PI) Rationale

Draft scoring range	ALB: 60 – 79 BET: < 60 YFT: ≥ 80
Information gap indicator	Information sufficient to score PI

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	Generally understood HCRs are in place or available that are expected to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, most of the time.
	Met?	ALB: Yes BET: Yes YFT: Yes	ALB: No BET: No YFT: No	ALB: No BET: No YFT: No

Rationale

Under SA2.5.2 in scoring issue (a) at the SG60 level, assessors shall accept 'available' HCRs (instead of HCRs that are 'in place') in cases where:

- Stock biomass has not previously been reduced below the MSY level or has been maintained at that level for a recent period of time that is at least longer than 2 generation times of the species, and is not predicted to be reduced below BMSY within the next 5 years;

Under SA2.5.3 Teams shall recognise 'available' HCRs as 'expected to reduce the exploitation rate as the point of recruitment impairment is approached' only in cases where:

- An agreement or framework is in place that requires the management body to adopt HCRs before the stock declines below BMSY.

ALB

The MSC Fisheries Standard v2.01 outlines two specific conditions for accepting Harvest Control Rules (HCRs) as "available" rather than fully implemented to achieve a score at the SG60 level. The first condition, described in SA2.5.2a, specifies that HCRs may be considered "available" if, as per guidance, "...Stock biomass has not previously fallen below the Maximum Sustainable Yield (MSY) level or has been maintained at or above that level over a recent period spanning at least two generations of the species and is not expected to drop below BMSY in the next five years." For albacore tuna, the generation time is approximately 6.4 years (see: <https://www.fishbase.se/summary/142>). In reference to scoring at PI 1.1.1, criterion (b), the 2022 stock assessment offers probabilistic parameter estimates (IOTC, 2022), showing that the recent spawning biomass (2020) of albacore tuna was approximately 36% of its unfished level (SB0) and 1.56 times the SBMSY. The assessment also indicates that the stock has historically remained above SBMSY, never falling below it (Figure 9).

Current projections suggest that the catch levels are sustainable in the short term, though the likelihood of biomass dipping below MSY increases over a longer horizon (by 2030). Overall, the available evidence supports that condition SA2.5.2a is met, thus allowing HCRs to be recognized as "available." The second condition, SA2.5.3a, allows HCRs to be deemed available if similar management procedures are already in place for other Units of Assessment (UoAs) governed by the same body and of comparable scale. Resolution 22/03 set forth a management process for Indian Ocean bigeye tuna, incorporating an HCR. This HCR calculates the HCR multiplier (HCRmult), set to 1 when biomass depletion (B/B0) is at or above 0.4, reducing gradually to nearly zero as depletion falls below 0.1. The Total Allowable Catch (TAC) is adjusted based on the biomass, F/FMSY, and HCRmult, with a limit on TAC changes capped at 15% from the previous level. The TAC was established for 2024-2025 (Res. 23/04) and will continue on a three-year cycle aligned with stock assessments. The combined evidence indicates that condition SA2.5.3a is also satisfied, and therefore, the HCR is considered "available." Meeting both conditions (SA2.5.2a and SA2.5.3a) generally validates HCRs that are expected to lower exploitation rates as the risk of recruitment impairment (PRI) nears, meeting SG60. Although the status of the stock is not overfished or in overfishing, the lack of a formal HCRs would not ensure that the exploitation is reduced when the stock is decreasing towards the PRI and SG80 is not met.

BET

The IOTC adopted Resolution 22/03 On a Management Procedure for Bigeye Tuna in the IOTC Area of Competence "with a view of maintaining the stock biomass in the green zone of the Kobe plot (not overfished and not subject to overfishing) while maximizing the average catch from the fishery and reducing the variation in the total allowable catch (TAC) between management periods". The IOTC harvest strategy for IO bigeye aims to maintain stock levels at or above BMSY, using regular stock assessments and management actions such as management of FADs (Resolution 19/02). BMSY was set as the interim target reference point under IOTC Resolution 15/10. The first TAC derived from the MP shall apply in 2024 and 2025. Since the harvest strategy is expected to achieve stock management objectives, SG60 could be met. That said, there is no ability of the management system to control effort. Resolution 21/01 requires "The Commission will develop a mechanism to constrain catch to the MP derived TAC for bigeye tuna no later than 2025, if an allocation scheme has not yet been agreed and implemented by the Commission." Due to the current high catches, the stock is expected to be in an overfished state in 2021 (IOTC SC 2021), and overfishing is already taking place ($F > F_{MSY}$), therefore the current management system cannot rebuild and maintain stock at the target level ($B > B_{MSY}$, F_{MSY}). The next stock assessment is taking place in October 2022. As per Resolution 22/02, the Scientific Committee will first apply the HCR at its meeting in December 2022. Further, it is not apparent that the harvest strategy is fully responsive to the status of the stock. SGs 80 and 100 are not met. It is worth noting that if a "well-defined" HCR did still not exist, the IO bigeye tuna stock would not pass SG60 as "generally understood" or "available" HCRs do not exist in that the IOTC. The rationale for this that the IOTC does not implement measures to reduce exploitation rates as PRI is approached, as demonstrated by the lack of success in implementing the interim yellowfin rebuilding plan (Resolution 21/01), and did not respond to IO bigeye and albacore being subject to overfishing. The 2019 stock assessment resulted in IO bigeye tuna being considered subject to overfishing. In 2019, the IOTC Scientific Committee estimated a 59% probability that the IO bigeye tuna stock is below a spawning biomass of MSY in 2021 if 2018 catches were maintained. 2018 and 2019 catches were higher than 2017 levels. As it is predicted that the stock will fall below BMSY within the next five years, therefore "available" HCRs could not be accepted and SG60 would not be met. Average catches from 2015 to 2019 were around 88,303 MT, which is slightly above the MSY estimate of 87,000 MT, however 2019 catches were 73,165, which is below MSY (IOTC

SC, 2020). As IO BET catches may remain below MSY, it is possible the stock will not be reduced below BMSY within five years. This meets SG60only.

YFT

Resolution 15/10 explicitly presented a set of well-defined rules that define specific actions depending on stock status relative to reference points. The statements in the rules aim to respond to the status assessed with the purpose of maintaining abundance and fishing pressure within the boundaries defined by the reference points. According to the definitions in the preceding paragraph, the harvest control rules as presented in Resolution 15/10 are considered a set of preagreed rules that allow the fishery to respond to changes perceived in stock assessments and define actions to be taken if the reference points are exceeded, and in general to maintain or restore abundance at the level producing MSY or above, therefore the rule can be considered as well defined. Nevertheless, the preamble observations in Resolution 15/10 highlight the fact that the reference points, and by implication, the main elements of the HCR are preliminary in nature, and although considered precautionary, have been active since 2015. II) The Harvest Control Rule is in place. Determination of whether the HCR is in place in the tuna fisheries of the Indian Ocean at the national level is highly complicated by the number of member nations which makes it very difficult to verify the regulatory framework of each country and their compliance system. In most cases, Resolutions are adopted and possibly implemented by all CPCs, but on occasion, some countries do object a Resolution (e.g. Resolution 21/01 on an interim rebuilding plan), although a previous version may remain binding for the objectors. At the regional level, the HCR, it is noted that some Resolutions (e.g. 17/02 on the implementation of management measures; 18/01, 19/01 and 21/01 on the implementation of a rebuilding plan for YFT) can be considered accessory tools to Resolution 15/10 to implement actions supporting the HCR and the use of the proposed reference points. It is also noted that the IOTC has made several attempts to control the fishing pressure to restore abundance according to the rebuilding plan, and although not always has succeeded, the results of the latest stock assessment indicate that catches were controlled and limited to be under MSY to the point where the data and results of the modelling analyses suggest that the stock is recovering. III) The HCR reduces exploitation rate as the PRI is approached. The results of the 2024 assessment are encouraging to demonstrate that the HCR is effectively capable of reducing the exploitation rate as the PRI is approached and would allow to expect that it could keep the stock fluctuating around a level consistent with MSY or above. However, previous years have shown evidence that overfishing was happening and the stock appeared to continue declining. The team recognizes that the situation is more optimistic at the time of conducting the MSC assessment but decided to act with caution and wait for future results to demonstrate that effectively the HCR is working as expected. Conclusion In summary, the team considered that there is a Generally Understood HCR in place that can be expected to reduce the exploitation rate as the point of recruitment is approached and the fishery meets the requirements for harvest control rules at SG60. The team also considered that given the recent history of difficulties to control fishing pressure, that only recently the evidence may indicate that the HCR is being effectively operational, the interim nature of the HCR and the reference points that have been proposed nine years ago, and the fact that some countries can object to any conservation measure that could be relevant to restrict fishing pressure and help to maintain the stock fluctuating around a target level consistent with MSY or above, the fishery does not meet the requirements at SG80 or SG 100.

HCRs robustness to uncertainty

b	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a wide range of uncertainties including the ecological role of the stock, and there is evidence that the HCRs are robust to the main uncertainties.
	Met?		ALB: No BET: Yes YFT: No	ALB: No BET: No YFT: No

Rationale

ALB

It is not possible to evaluate the harvest control in relation to uncertainties, because the HCR has not been defined well enough to do so. Therefore, SG80 cannot be met.

BET

As described under scoring issue (a), these stocks currently have well-defined HCRs. SGs 80 and 100 are not met. Management Strategy Evaluations (MSE) have been completed for the skipjack and therefore it can be expected that other species will follow as set out above. During the MSE HCR's are tested for the robustness to the main uncertainties. As the HCR is likely to be robust to the main uncertainties, SG80 is met. However, the results of both the skipjack and bigeye stock the stock assessments are uncertain, therefore it cannot be said that there is evidence that the HCRs are robust to the main uncertainties; SG100 is not met.

YFT

The MSC Guidance to the Fisheries Certification Requirements (GSA2.5.2-2.5.5 Scoring 'available' HCRs at SG60 and Scoring Issue b – Scoring uncertainty in the HCRs) is very clear in the way robustness to uncertainty in the HCR has to be evaluated. The Guidance recognises cases where a HCR "has not been fully agreed by stakeholders, and it is uncertain whether the fishing community will comply with the HCR. This last issue is important to ensure HCRs are not only theoretical rules on paper, but are actually applied in practice". The team considers that this is still a significant cause of concern given the large number of member in the IOTC and the intrinsic diversity of opinions that can prevent absolute agreements to control fishing pressure and ensure that management objectives can be met. The fishery does not meet SG80 or SG 100

c	HCRs evaluation			
	Guide post	There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	ALB: Yes BET: Yes	ALB: No BET: No	ALB: No BET: No

	YFT: Yes	YFT: No	YFT: No
Rationale			
ALB			
The tools that the IOTC have available include TACs, area access and other measures. The IOTC has begun to develop allocation mechanisms for both TACs and access agreements and the Scientific Committee has initiated the process of control rule development, but this has not yet been applied to albacore, nor have TACs been established for albacore. Although controls on fleet capacity have had limited success, there is some evidence that some CPC members have controlled their own catches in an effective manner and that this could be extended across key fleets (e.g., larger purse seine and longline vessels). According with the available data, the longline fishing effort has decreased since the implementation of Res. 13/09, both in term of fishing trips and number of hooks used (Figure 11). Therefore, considering also the values of fishing morality below FMSY, it is possible to conclude that there is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation. This suggests that SG60 is met. . However, without a well-defined HCR already in place, there is not a clear indication that the tools used are effective in controlling the exploitation and SG80 is not met.			
BET			
The IO BET stock is subject to overfishing and is overfished (IOTC SC 2022). The IO BET management procedure adopted in 2022 was applied to determine a recommended TAC for Bigeye tuna for 2024 and 2025. Catch in 2021 (94,803 t) of bigeye tuna was above the recommended TAC for 2024 and 2025 from the application of the bigeye tuna Management Procedure. Recent catches have been lower than the estimated MSY and the spawning biomass has been increasing in the last three years. That said, these catches do not appear to be due to a conscious effort control catches, and there is no ability of the management system to control effort. Thus, although tools may be available to implement a HCR, there is no evidence that these tools can effectively reduce fishing mortality. SG60 is only met.			
YFT			
The overall effect of resolutions 12/01 and 15/10 and 19/01 is to provide interim elements of the harvest strategy that are intended to ensure that the stock is maintained around the target reference points (BMSY and FMSY), implying the intention of resolutions 12/01, 15/10 and 19/01 to be consistent with appropriate management. Resolution 15/10 (IOTC 2015a) has set interim target (BMSY and FMSY) and limit (BLIM = 0.40 BMSY and FLIM = 1.40 FMSY) reference points for YFT and 19/01 (IOTC, 2019b) determines the cuts of catches of the 2014 catch level. Theoretically the harvest control rule is appropriate and effective in controlling exploitation. The results of the 2024 assessment are encouraging in presenting some evidence that the tools are effective in controlling exploitation, but significant uncertainty prevails, therefore SG60 is met, but not SG80 or SG 100.			

Overall Performance Indicator (PI) Rationale

Draft scoring range	ALB: 60 – 79
	BET: 60 – 79
	YFT: 60 – 79
Information gap indicator	Information sufficient to score PI

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	ALB: Yes BET: Yes YFT: Yes	ALB: Yes BET: Yes YFT: Yes	ALB: No BET: No YFT: No

Rationale

ALB

The data available for the 2022 update stock assessment included nominal catch data covering all fleets (completed by estimates by the Secretariat where required), operational catch and effort data from some fleets, longline and purse seine size-frequency and biological data (age and growth, maturity, natural mortality, including consideration of sex-specific rates). This provides sufficient relevant information to conduct a stock assessment and thereby support the harvest strategy; meeting SG60 and SG80. SG100 requires a comprehensive range of information. Size data has some uncertainties, and overall because of these uncertainties, poor sampling of small sizes and the nature of albacore growth was a source of uncertainty in the assessment, and was eventually down-weighted in the model. An analysis of available biological data also suggests that improvements could be made as growth data are missing. SG100 is not met.

BET

The IO bigeye assessment uses a wide range of data including catch, effort, tagging information, and length composition (Fu et al. 2022). Stock structure has been investigated using genetic data (Appleyard et al. 2002). Some catch data, e.g. from Indonesia and Iran, was reported as incomplete (IOTC WPCDS 2019). Environmental data relevant to the stock, such as information on El Niño–Southern Oscillation cycles, are monitored but not directly used in the assessment. Overall, data collected for this stock are sufficient to support the harvest strategy but not comprehensive; SG80 is met.

YFT

In accordance with the provisions of Article IX, paragraph 1 of the IOTC Agreement: 1. Each flag CPC shall ensure that all purse seine, longline, gillnet, pole and line, handline and trolling fishing vessels flying its flag and authorised to fish species managed by IOTC be subject to a data recording system. 2. The measure shall apply to all purse seine, longline, gillnet, pole and line, handline and trolling fishing vessels over 24 metres length overall and those under 24 metres if they fish outside the EEZs of their flag States within the IOTC area of competence. 3. All vessels shall keep a bound paper or electronic logbook to record data that includes operational, catch and effort information. 4. The Flag State shall provide all the data for any given year to the IOTC Secretariat by June 30th of the following year on an aggregated basis. Following Resolution 15/01 (IOTC 2015c) there is a call upon States, either individually, collectively or through regional fisheries management organisations and arrangements included in the United Nations General Assembly Resolution 67/79 on sustainable fisheries to collect the necessary data in order to evaluate and closely monitor the use of large-scale fish aggregating devices and others, as appropriate, and their effects on tuna resources and tuna behaviour and associated and dependent species, to improve management procedures to monitor the number, type and use of such devices to mitigate possible negative effects on the ecosystem, including on juveniles and the incidental bycatch of non-target species, particularly sharks and turtles. Additionally, Resolution 15/02 Contracting Parties and Cooperating Non-Contracting Parties (CPCs) shall provide the following information to the IOTC Secretariat: 1. Total catch data: Estimates of the total catch by species and gear, if possible quarterly, that shall be submitted annually (separated, whenever possible, by retained catches in live weight and by discards in live weight or numbers) for all species under the IOTC mandate as well as the most commonly caught elasmobranch species according to records of catches and incidents as established in Resolution 15/01 on the recording of catch and effort data by fishing vessels in the IOTC area of competence 2. Concerning cetaceans, seabirds and marine turtles, data should be provided. Catch and effort data: for example, for longline fisheries catch by species, in numbers or weight, and effort as the number of hooks deployed shall be provided by 5° grid area and month strata. Documents describing the extrapolation procedures (including raising factors corresponding to the logbook coverage) shall also be submitted routinely. For the work of relevant working parties under the IOTC Scientific Committee, longline data should be of a resolution of 1° grid area and month or finer. Another source of biological information is the Regional Observer Scheme database, that collates data – including size and weight measurement – recorded by scientific observers and reported to the IOTC Secretariat (in detailed form) as part of the ROS data exchange workflow. Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy. For more detailed data availability see P1.2.3c. SG60 and SG80 are met. A range of environmental indices are configured to characterise seasonal and temporal variation in the oceanographic conditions in the Indian Ocean. These indices are primarily defined to investigate the potential for environmental covariates to be incorporated in the estimation of the movement of fish between adjacent model regions. However, noting the uncertainty associated with data quality (IOTC 2018, Martin 2023) (e.g., spatial representativeness of CPUE coverage, difficulties in the estimation of total catch and inconsistencies in length-frequency data) SG 100 is not met

b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with	Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage	All information required by the harvest control rule is monitored with high frequency and a high degree

		sufficient frequency to support the harvest control rule.	consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	ALB: Yes BET: Yes YFT: Yes	ALB: Yes BET: Yes YFT: Yes	ALB: No BET: No YFT: No

Rationale

ALB

Monitoring indices from several fleet's standardized CPUE and from tagging data are adequate for the harvest strategy. Indicators of stock abundance mainly consist of standardised catch-per-unit-effort indices, which have been improved in recent years. A single consistent index is not available for the entire time series, but the combined indices do appear to provide some picture of the change in abundance that has occurred. UoA removals are well monitored, considering that the quality score from IOTC indicates that the amount of nominal catch associated with each dataset that is fully reported according to IOTC standards (Figure 12). Therefore, SG60 and SG80 are met. However, there is not a good understanding of the inherent uncertainties in the information (data) as the doubt about stock configuration and growth. Therefore, SG100 is not met.

BET

Indicators of stock abundance consist primarily of standardised CPUE indices. These indices are regularly monitored at a level of accuracy and coverage that would be consistent with supporting HCRs, particularly when combining information from multiple indices. UoA removals are also monitored at a sufficient level of accuracy, coverage, and frequency to support HCRs. Nonetheless, CPUE data from individual CPCs can continue to be improved and standardised (e.g. IOTC WPTT 2019). SGs 60 and 80 are met, SG100 is not.

YFT

Large amounts of data are collected and used by the IOTC Secretariat to estimate minimum catches. All CPCs must report landings at designated ports, and it is the responsibility of flag states to submit these data to the IOTC. Like most RFMOs, data are handled in digital format and catches are reported electronically, and for OPAGAC, are linked to AIS / VMS – AZTI for processing. Each IOTC dataset (nominal catch, catch and effort, and size data) are assessed against IOTC standards and are assigned quality grades according to the following table (Reproduced from IOTC 2024a) The proportion of catches estimated, or adjusted, by the IOTC Secretariat is relatively low. Catches are less certain for many coastal fisheries, notably those from Indonesia, Sri Lanka, Yemen, and Madagascar; the gillnet fishery of Pakistan; Non-reporting industrial purse seiners and longliners (NEI), and longliners of India. Catch data are considered to be generally well known for the major industrial fisheries, but quality of the data from the artisanal fisheries was not very good until about 2010. Overall, compared to other species groups, retained catch data for tropical tuna are well reported. With over 49% of the tropical catches are from industrial fisheries, which are well monitored through logbooks and recording systems, there is

minimal uncertainty regarding industrial retained catches. In contrast, the percentage of fully or partially reported catches from coastal fisheries decreased to 61%, down from 69% in 2022 (IOTC 2024a). Consequently, the overall percentage of tropical tuna catches fully or partially reported to the Secretariat stood at 61% in 2023. In addition, as much as 30% of the total tunas tagged by the Indian Ocean Tuna Tagging Programme (IOTTP) are yellowfin Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule, therefore SG60 and SG80 are met. Although all information required by the harvest control rule is monitored with high frequency, for a number of fisheries a certain level of catch of tropical tuna and catch-and-effort remains either unavailable, incomplete (e.g., missing catches by species or gear), or only partially reported according to the standards of IOTC Resolution 15/02, or done at a higher degree of uncertainty. There is also low understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty, therefore SG100 is not met.

c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		ALB: Yes BET: Yes YFT: Yes	

Rationale

ALB

IOTC has put considerable effort into the reporting and recording of all tuna catches by the contracting parties. The current level of reporting is adequate given the number of small countries involved and difficulties in monitoring small vessels and activities in pelagic waters well away from the coast. For example, some countries do not report tuna catch by species, so only estimates are available. Total catches are estimated reasonably well, and data are sufficiently well recorded for the stock assessment and for assessing the level of control sought by IOTC over landed catches. The purse seine fisheries are required to retain and land all non-target species wherever possible, or record discards (Res. 19/05), which with an observer programme should result in more reliable statistics from the main purse seine fleets (Figure 13). Overall, data are sufficient to meet SG80.

BET

The IOTC puts considerable effort into data collection, and catch reporting is generally adequate, with reasonably good estimates of total landings despite monitoring challenges (e.g. IOTC WPDCS 2019). For example, some member countries oversee numerous small fishing vessels that do not report catches by species, and must therefore estimate catches by species. Data from longline fisheries are relatively somewhat, although discards are not generally record in logbooks. The main longline fleets also have some observer coverage. SG80 is met.

YFT

Catch and effort data series are available for the major industrial and artisanal fisheries (see Figure). For other important fisheries catch-and-effort are either not available, or are considered to be of poor quality for the following

reasons: - data for the fresh-tuna longline fishery of Taiwan, China are only available since 2006 and partial data for the fresh-tuna longline fishery of Indonesia is available only for 2018; - insufficient data for the gillnet fisheries of I.R., Iran (before 2007) and Pakistan; - poor quality effort data for the significant gillnet-longline fishery of Sri Lanka (until 2014); - no data are available from important coastal fisheries using hand and/or troll lines, in particular Oman, Yemen, Madagascar and Indonesia (until 2018). Despite these shortfalls the quality of the data can be considered good at least in the last 10 years. Catch-at-Size (Age) data are available, although the estimates are more uncertain in some years and some fisheries due to: - size data not being available from important fisheries, notably Yemen, Pakistan, Sri Lanka and Indonesia (lines and gillnets) and Comoros and Madagascar (lines). Data from the artisanal fisheries of Oman (mainly handlines) is known to be available for some years (until 2016) but has not been officially submitted to the IOTC Secretariat. - the paucity of size data available from industrial longliners from the late-1960s up to the mid-1980s, and in recent years (Japan and Taiwan, China) - the paucity of catch by area data available for some industrial fleets (NEI fleets, I.R. Iran, India, Indonesia, Malaysia). Catch data are considered to be generally well known for the major industrial fisheries, with the proportion of catches estimated, or adjusted, by the IOTC Secretariat relatively low. There is currently considered to be good information on all other fishery removals from the stock, SG80 is met.

Overall Performance Indicator (PI) Rationale

Draft scoring range	ALB: ≥ 80 BET: ≥ 80 YFT: ≥ 80
Information gap indicator	Information sufficient to score PI
Data-deficient? (Risk-Based Framework needed)	No

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		ALB: Yes BET: Yes YFT: Yes	ALB: No BET: Yes YFT: Yes
Rationale				
ALB A new stock assessment was carried out for albacore in 2022 to update the assessment undertaken in 2019. The stock assessment models for Indian Ocean albacore applied cover both age-structured (Stock Synthesis: SS3) and size-structured (statistical catch-at-size: SCAS) models. Final status determination was taken from the SS3 fits, after the WPTmT had made some adjustments to the final models. Therefore, appropriate models have been identified and used for the stock assessment, meeting SG80. Although inconsistencies due to a lack of information on the stock rather than a problem with the model, this also means that it has not been clearly demonstrated that the stock assessment has taken full account of the biology of the species as the growth or attributes of the fleets as the selectivity, so SG100 is not met.				
BET The IOTC Scientific Committee assesses the status of the IO bigeye stock every three years, doing so most recently in 2022. Fu et al. (2022) applied two models were applied to the bigeye stock (Statistical Catch at Size and Stock Synthesis (version 3.30), and the latter was used as the basis for developing management advice. The assessment uses a spatially structured, age-based model that integrates catch rate indices, length-compositions, and tagging data. SGs 80 and 100 are met.				
YFT The integrated Stock Synthesis III statistical catch at age stock assessment methodology is well developed (Methot & Wetzel 2013) and was used by the IOTC to assess the yellowfin tuna stock status in 2024. This assessment provides results of stock status relative to the pre-agreed reference points. The 2024 assessment is the latest iteration of assessments that have been conducted and represents an improvement from previous iterations. Particular care has been applied to data quality producing new CPUE abundance indices from the main longline fleets from 1975-2023 which significantly informed the assessment model. The new index differed from the one used in the 2021 assessment particularly in the northwestern region from 2005 to 2015 and 2019 and 2020. The longline index also shows an increase in abundance from 2021 to 2023 (Figure 8). CPUE from the EU purse-seine				

fleet fishing on free schools of fish were included in a subset of models, and indices based on the associative and non-associative dynamics of yellowfin tuna were also considered and their usefulness evaluated. Tag release and recovery data provided information on abundance, movements and mortality rates. Alternative assumptions regarding changes in the efficiency of the longline fleet were included to account for effort creep. Parameters of growth and natural mortality were revised. The stock assessment estimates status relative to reference points reflected in the harvest control rule, therefore it is considered to be appropriate for the stock and the control rule. It also takes into account the main features of the biology of the species and the nature of the UoA, therefore meets the requirements at both SG80 and SG100.

b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	ALB: Yes BET: Yes YFT: Yes	ALB: Yes BET: Yes YFT: Yes	

Rationale

ALB

The stock assessment results are used to formulate MSY-related reference points, which are used to determine stock status and HCRs where applicable. These reference points appear appropriate to the respective stocks (IOTC). SG 80 is met.

BET

The stock assessment results are used to formulate MSY-related reference points, which are used to determine stock status and HCRs where applicable. These reference points appear appropriate to the respective stocks (IOTC). SG 80 is met.

YFT

The stock assessment results are used to formulate MSY-related reference points, which are used to determine stock status and HCRs where applicable. These reference points appear appropriate to the respective stocks (IOTC). SG 80 is met.

c	Uncertainty in the assessment			
	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.

	Met?	ALB: Yes BET: Yes YFT: Yes	ALB: Yes BET: Yes YFT: Yes	ALB: Yes BET: Yes YFT: Yes
--	------	----------------------------------	----------------------------------	----------------------------------

Rationale

ALB

Stock assessment methods have been used to report uncertainty in estimates of stock status. Uncertainties have been examined as alternative model configurations and estimates of statistical uncertainty in parameters produced as a grid of equally likely “states of nature”. The configurations have been evaluated so that the final results represent an expert consensus of their relative importance. The stock status associated with each model has been evaluated in a probabilistic manner (based on an assumed multivariate normal distribution for parameters). These probabilities have been carried through the Kobe plots and Kobe strategy matrix (phase diagram of fishing mortality versus SSB at time and projections of the probability of exceeding reference points for alternative catch levels, respectively). Therefore, uncertainty is carried through from the assessment to management advice (see Table 15), meeting SG60, SG80 and SG100

BET

Stock assessment methods have been used to report uncertainty in estimates of stock status. Uncertainties have been examined as alternative model configurations and estimates of statistical uncertainty in parameters produced as a grid of equally likely “states of nature”. The configurations have been evaluated so that the final results represent an expert consensus of their relative importance. The stock status associated with each model has been evaluated in a probabilistic manner (based on an assumed multivariate normal distribution for parameters). These probabilities have been carried through the Kobe plots and Kobe strategy matrix (phase diagram of fishing mortality versus SSB at time and projections of the probability of exceeding reference points for alternative catch levels, respectively). Therefore, uncertainty is carried through from the assessment to management advice (see Table 15), meeting SG60, SG80 and SG100

YFT

Stock assessment methods have been used to report uncertainty in estimates of stock status. Uncertainties have been examined as alternative model configurations and estimates of statistical uncertainty in parameters produced as a grid of equally likely “states of nature”. The configurations have been evaluated so that the final results represent an expert consensus of their relative importance. The stock status associated with each model has been evaluated in a probabilistic manner (based on an assumed multivariate normal distribution for parameters). These probabilities have been carried through the Kobe plots and Kobe strategy matrix (phase diagram of fishing mortality versus SSB at time and projections of the probability of exceeding reference points for alternative catch levels, respectively). Therefore, uncertainty is carried through from the assessment to management advice (see Table 15), meeting SG60, SG80 and SG100

Evaluation of assessment

d	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			ALB: No BET: No YFT: No

Rationale

ALB

The SS3 stock assessments in 2019 and 2022 were rigorous, exploring various structural changes in fitting the available data, so were statistical in nature. Basic information on the biology and suspected stock structure spawning vs feeding areas, distribution of adults and juveniles, shared stock with IOTC etc.) was not included likely due to data limitations. So, although the stock assessment itself was rigorous, it is not clear that alternative hypotheses have been rigorously explored yet and therefore whether the assessment was robust to these is unclear, so SG100 is not met.

BET

The SS3 stock assessments in 2019 and 2022 were rigorous, exploring various structural changes in fitting the available data, so were statistical in nature. Basic information on the biology and suspected stock structure spawning vs feeding areas, distribution of adults and juveniles, shared stock with IOTC etc.) was not included likely due to data limitations. So, although the stock assessment itself was rigorous, it is not clear that alternative hypotheses have been rigorously explored yet and therefore whether the assessment was robust to these is unclear, so SG100 is not met.

YFT

The SS3 stock assessments in 2019 and 2022 were rigorous, exploring various structural changes in fitting the available data, so were statistical in nature. Basic information on the biology and suspected stock structure spawning vs feeding areas, distribution of adults and juveniles, shared stock with IOTC etc.) was not included likely due to data limitations. So, although the stock assessment itself was rigorous, it is not clear that alternative hypotheses have been rigorously explored yet and therefore whether the assessment was robust to these is unclear, so SG100 is not met.

e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		ALB: Yes BET: Yes	ALB: Yes BET: Yes

			YFT: Yes	YFT: Yes
Rationale				
ALB				
The stock assessments are reviewed through the Working Party system of the IOTC's Scientific Committee. Additionally, outside experts are regularly invited to participate in the Working Party meetings. However, the structure of the WP meeting limited the degree of both external and internal review. Levels of review are clearly adequate to meet SG80. There is not an external review of the albacore stock available and SG100 is not met.				
BET				
The stock assessments are reviewed through the Working Party system of the IOTC's Scientific Committee. Additionally, outside experts are regularly invited to participate in the Working Party meetings. However, the structure of the WP meeting limited the degree of both external and internal review. Levels of review are clearly adequate to meet SG80. There is not an external review of the albacore stock available and SG100 is not met.				
YFT				
The stock assessments are reviewed through the Working Party system of the IOTC's Scientific Committee. Additionally, outside experts are regularly invited to participate in the Working Party meetings. However, the structure of the WP meeting limited the degree of both external and internal review. Levels of review are clearly adequate to meet SG80. There is not an external review of the albacore stock available and SG100 is not met.				

Overall Performance Indicator (PI) Rationale	
Draft scoring range	ALB: ≥ 80 BET: ≥ 80 YFT: ≥ 80
Information gap indicator	Information sufficient to score PI

6.5 Principle 2

6.5.1 Principle 2 background

Principle 2 considers the impacts of the UoA on the ecosystem, including impacts on non-target species (including species used as bait), habitats, and key ecosystem components. Thus, it is important to identify the other species caught and used in the fishery, as well as the characteristics of the fishing gear. Under the MSC Fishery Standard, the way a fishery's impact on non-target species is assessed depends on whether the species is from a "managed" stock or not, or if it is considered ETP species. Species categorizations are defined as follows.

Primary species (MSC Component 2.1):

- Species in the catch that are not covered under Principle 1 (P1).
- Species that are within the scope of the MSC program, i.e. no amphibians, reptiles, birds, or mammals.
- Species where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit (LRP) or target reference points (TRP). Primary species can therefore also be referred to as managed species.

Secondary species (MSC Component 2.2):

- Species in the catch that are not covered under P1.
- Species that are not managed in accordance with a limit or target reference points, i.e. do not meet the primary species criteria.
- Species that are out of scope of the program, but where the definition of ETP species is not applicable (see below).

ETP species (MSC Component 2.3):

- Species that are recognized by national ETP legislation.
- Species listed in binding international agreements (e.g. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on Migratory Species (CMS), Annex 1 of the Agreement on Conservation of Albatross and Petrels (ACAP), etc.).
- Species classified as 'out of scope' (amphibians, reptiles, birds, and mammals) that are listed in the International Union for Conservation of Nature (IUCN) Red list as Vulnerable (VU), endangered (EN) or critically endangered (CE).

Both primary and secondary species are further defined as 'main' if they meet the following criteria:

- The catch comprises 5% or more by weight of the total catch of all species by the Unit of Assessment;
- The species is classified as 'less resilient' and comprises 2% or more by weight of the total catch of all species by the Unit of Certification. Less resilient is defined here as having low to medium productivity, or species for which resilience has been lowered due to anthropogenic or natural changes to its life-history;
- The species is out of scope but is not considered an ETP species (secondary species only).

Exceptions to the rule may apply in the case of exceptionally large catches of bycatch species, such that even small catch proportions of a P2 species significantly impact the affected stocks/populations. In the case where individuals

are released alive, they shall not contribute to the definition of 'main' where strong scientific evidence exists of a very low post-capture mortality. All other primary species not considered 'main' shall be considered 'minor' species.

Approach to assigning species designations.

The general approach to assigning species as Primary, Secondary or ETP for a full assessment would ideally involve a review of the following:

- Logbook and observer data, to determine catch composition (and proportions) for each UoA;
- Vessel and gear configuration for each of the UoA fleets (i.e. when targeting different species);
- Species and quantities of bait species utilised;
- Species designated as ETP within the UoA geographic area, including:
 - species listed as ETP by national legislation of relevant EEZs;
 - species listed in binding international agreements (listed above) to which UoA flag states and/or EEZs are party to (i.e. species listed under CITES Appendix 1 and CMS Appendix 1 likely to be present within the geographical area of the UoA);
 - those listed on bi-lateral agreements between flag states and respective relevant EEZs.

The MSC has clarified that Parties to the CMS are required to 'endeavour to provide immediate protection for migratory species included in Appendix I of the CMS' and to 'endeavour to conclude Agreements covering the conservation and management of migratory species included in Appendix II'. Agreements are adopted to reflect the direct conservation needs of species and the requirements of regions (Sant et al, 2012[10]). Species listed in any of these shall be classified as ETP for the purposes of an MSC assessment. (GSA3.1.5.2, MSC 2018a). Only species listed in Appendix I of the CMS or in agreements concluded under the CMS are considered to be ETP. Species listed in non-binding memoranda of understanding concluded under the CMS are not considered ETP (SA3.1.5.2.b, MSC 2018a).

The MSC has also clarified that where international agreements apply to only one part of the UoA, the fishery should be assessed as if the agreement applied to the whole UoA (GSA3.10, MSC 2018). Through the MSC Interpretations Log, the MSC has also clarified that national ETP legislation can also mean binding fisheries legislation where the intent is to protect vulnerable species:

"As ETP species include 'protected' species (not just endangered/threatened), there may be instruments other than those created specifically for protection of wildlife/endangered species 2 Beverly S, Curran D, Musyl M, Molony B (2009) Effects of eliminating shallow hooks from tuna longline sets on target and non-target species in the Hawaii-based pelagic tuna fishery. Fish Res 96:281–288. where this protection is provided..... However, the MSC recognises that not all species that have a 0 TAC set for a given year (e.g. in other instruments) should normally be considered as ETP, unless the intent of doing so is stated in the instrument as being to specifically to protect the species because of its poor conservation status."

This interpretation has also been applied to RFMO conservation and management measures where prohibition of directed fishing / 0 TACs are set specifically to protect species due to their respective conservation status (for example silky sharks under CMM 19-04 in the OPAGAC Four Oceans tuna purse seine Pacific Ocean [11]). The same approach has been adopted here.

Some certified fisheries within the Indian Ocean have also taken a precautionary approach, and where national ETP/fisheries legislation provides protection to species within the EEZ (e.g. for sharks), the fishery has been assessed as if the EEZ measures apply to the whole UoA (e.g., Gascoigne et al., 2021; Trott et al., 2020). We have not taken this approach here, as it is not clear the extent to which some species such as blue shark represent a commercial proportion of the catch for the UoA. ETP status has been assigned to shark species for this pre-assessment for those listed on CMS Appendix 1 and under ICCAT Recommendations 09-07, 10-06, 10-07 and 10-08 (see below).

Information sources for the pre-assessment

The following key information sources were not available for this pre-assessment:

- Logbook and observer data for the UoA or client vessels;
- UoA fleet characterisation, including gear configuration when targeting albacore, yellowfin or bigeye tuna and fishery location; there was insufficient time available to research this aspect in detail across all flag states;
- Species and quantities of bait used by the various UoAs;

Therefore, the following information sources were used to provide indicative catch composition and to designate indicative Primary, Secondary and ETP species:

- Other longline fisheries that are certified or in assessment by the MSC, including:
 - DiNardo, G., Ahlers, B., Bodswort, A. and A. Hamilton (2021) Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery MSC Announcement Comment Draft Report (ACDR).
 - Akroyd, J., Kirchner, C., McLoughlin, K., Blyth-Skyrme, R., Norman, S. and D. Japp (2020) AGAC four oceans Integral Purse Seine Tropical Tuna Fishery (Atlantic Ocean) Public Comment Draft Report.
- National legislation relevant to ETP species designation for applicable flag states and EEZs where possible; not all national legislation nor bilateral agreements (flag state vs EEZ) were reviewed; this is documented where applicable.

Indian Ocean longline fishery background

Longline gear typically consists of a single mainline that is periodically buoyed with floatation devices and thinner branch lines (with baited hooks) attached to the mainline between the floats. A variety of configurations and operational practices can be employed to specifically target different depths and species of fish. To better assess the risk posed by the fishery to turtles and other ETP species, additional information characterising the UoAs gear configuration would be helpful, such as:

- Hook types used (e.g. circle/J hooks and size);
- Bait used (e.g. squid versus whole fish bait) or practices such as chumming to attract target species;
- Number of hooks between floats (as a proxy for depth of set (Peatman et al., 2018);
- Use of wire traces or other modifications related to targeting of sharks;
- Spatial representation of UoA (e.g. with respect to latitude/longitude).

For example, depth of set can be an important factor for turtle bycatch rates. Catch rates have been reportedly higher for shallow sets (Gilman et al. 2006[8]), but mortality of hooked turtles is higher for deeper sets (20 to 30% of the turtles were released alive healthy or injured and conditions at vessel and at release were generally better for sea turtles caught by shallow sets (Peatman et al., 2018). Previous work in the well-studied Hawaii longline fishery (Beverly et al., 20092) also notes the reduction in bycatch species, including turtles with the elimination of shallow-set longlines.

Indicative Principle 2 species

Based on the information obtained from other, similar longline fisheries in the Indian Ocean, the following table (Table 9) demonstrates the species estimated to be encountered by the Indian Ocean longline tuna fishery.

Table 9 Lists presumed Principle 2 species and designations across all Indian Ocean UoAs and respective rationales for consideration. These species are based on a review of similar fisheries.

Common name	Scientific name	Category	Justification
Bigeye tuna	<i>Thunnus obesus</i>	Target P1/Primary Main	Managed, >5%
Albacore tuna	<i>Thunnus alalunga</i>	Target P1/Primary Main	Managed, >5%
Yellowfin tuna	<i>Thunnus albacares</i>	Target P1/Primary Main	Managed, >5%
Japanese Sardine (Both stocks)	<i>Sardinops sagax</i>	Primary Main	Bait
Swordfish	<i>Xiphias gladius</i>	Primary Minor	Managed, <5%
Blue marlin	<i>Makaira nigricans</i>	Primary Minor	Managed, <5%
Indo-Pacific sailfish	<i>Istiophorus albicans</i>	Primary Minor	Managed, <5%
Skipjack tuna	<i>Katsuwonus pelamis</i>	Primary Minor	Managed, <5%
Black marlin	<i>Makaira indica</i>	Primary Minor	Managed, <5%
Striped marlin	<i>Kajikia audax</i>	Primary Minor	Managed, <5%
Blue shark	<i>Prionace glauca</i>	Secondary Minor	Unmanaged, <5%
Pelagic Stingray	<i>Pteroplatytrygon violacea</i>	Secondary Minor	Unmanaged, <5%
Silky shark	<i>Carcharhinus falciformis</i>	ETP	CMS App 1

Shortfin mako	<i>Isurus oxyrinchus</i>	ETP	CMS App 1
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	ETP	CMS App 1
Thresher sharks nei	<i>Alopiidae spp.</i>	ETP	CMS App 1
Olive Ridley turtle	<i>Lepidochelys olivacea</i>	ETP	CMS App 1
Leatherback turtle	<i>Dermochelys coriacea</i>	ETP	CMS App 1
Loggerhead turtle	<i>Caretta caretta</i>	ETP	CMS App 1
Green turtle	<i>Chelonia mydas</i>	ETP	CMS App 1
Yellow-nosed Albatross	<i>Thalassarche carteri</i>	ETP	ACAP, EN
Wandering Albatross	<i>Diomedea exulans</i>	ETP	ACAP, VU

Bait species

Using the data obtained from similar fisheries, Japanese sardine has been the only species identified as a potential bait species used by this fishery. Without detail on other species and the quantity of bait used by the UoAs it has not been possible to adequately estimate the total impact that the fishery is having on the stocks of this species. Furthermore, it is unclear if the species should be designated as Primary or Secondary, which will negatively affect the score of the performance indicators associated with these two scoring elements. Scores under 2.3.1 and 2.3.2 may also be influenced by bait used, due to potential for higher sea turtle catch rates associated with squid bait.

Cumulative impacts

The following MSC criteria determine whether cumulative impacts (e.g. combined impacts of MSC UoAs) require consideration for primary, secondary, ETP or Habitats PIs.

- Any main primary species where the fishery is hindering recovery?
 - The fishery is not considered to be hindering recovery of any of the main primary.
- Any main secondary species where catches are considerable, i.e. >10%?
 - Based on observed catch proportions, none of the main Secondary species identified by the preassessment represent greater than 10% of the UoA catch.
- Any ETP with national/international limits?

No national/international limits in place.

6.5.2 Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are likely to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are highly likely to be above the PRI. OR If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding.	There is a high degree of certainty that main primary species are above the PRI and are fluctuating around a level consistent with MSY.
	Met?	All stocks: Yes	All stocks: Yes	All stocks: No

Rationale

It is assumed main primary species include albacore, bigeye, yellowfin and bait species of Japanese sardine. For P1 species that would be primary in each others UoA, see P1 scoring for information.

Japanese sardine (Japanese Pacific and Tsushima stocks) This species is made up of two stocks (Kuroshio, or Pacific Ocean, and Tsushima, or East Chinese Sea and Japan Sea). According to the information provided by the client the bait is being supplied from Japan who harvest Japanese sardine. Both stocks are assessed annually by the Fisheries Research and Education Agency of Japan (FRA) and are managed through a TAC, termed allowable biological catches (ABCs). To determine stock status, assessment scientists use cohort analysis to estimate biomasses at age and evaluate spawning stock biomass (SSB) against a target reference point (TRP) aiming to achieve MSY (SSBMSY) set at 1,187,000 t (Pacific stock) and 1,093,000 t (Tsushima stock) with the respective limit reference points (LRPs) set at 60% of MSY. This LRP was the estimated SSB level below which recruitment is thought to be poor (Yukami et al., 2017) - i.e. this is a suitable proxy for the PRI. The latest assessment conducted for the Pacific stock was in 2023 (FRA, 2023a), the catch in 2022 was estimated at 561,000 t, which was a decrease from 627,000 t in 2021 (FRA, 2023a). It is noted in the recent assessment that as the stock has increased and migration ranges expanded catches by foreign fleets from China and Russia have increased with an estimated 288,000 t and 267,000 t caught respectively in 2022. It is evident that in many early years, fishing mortality (F)

exceeded FMSY which is the point at which SSBMSY is achieved, but since 2012 decreased to around FMSY resulting in the SSB increasing and exceeding SSBMSY since 2018 ($SB_{2022}/SB_{MSY} = 2.03$) (Figure 17). This provides confidence that the stock is highly likely to be above biologically based limits such that SG60 and SG80 are met. Projections indicate a 100% probability that the stock will exceed the target reference point (TRP) by 2031 if fishing mortality is set at 1.2 FMSY until 2023 (with catches around 922,000 t in 2023) and then remains from 2024 around 0.85 FMSY (FRA, 2023a). However, there have been recent increases in fishing mortality between 2019 and 2023, such that fishing mortality now exceeds FMSY ($F_{2022}/F_{MSY} = 1.50$). Given current (2022) fishing mortality is above 0.85 FMSY with catches from foreign fleets (China and Russia) increasing since 2019, coupled with the population dynamics of this stock, particularly recruitment, being strongly linked to oceanographic variables, (which fluctuate on decadal timescales), there is not a high degree of certainty that the SSB will fluctuate around a level consistent with MSY and the TRP. SG100 is not met.

The latest assessment conducted for the Tsushima stock was in 2023 (FRA, 2023b). The catch in 2022 was estimated at 71,000 t, which was an increase from 55,000 t in 2021 (FRA, 2023b). It is evident that for many years F exceeded FMSY and as a result, the level of SSB is currently lower than that to achieve MSY (0.35 in 2022 - SB_{2022}/SB_{MSY}) (Figure 18). Trends in spawning stock biomass suggest it has remained at low levels since 1994 (FRA, 2022b). Thus, the stock is currently below the PRI and the first part of SG60 and SG80 is therefore not met. Fishing mortality has been slightly higher than FMSY in recent years but declined to a level significantly lower than FMSY in both 2021 and 2022 (0.56 in 2022 - F_{2022}/F_{MSY}). As outlined by GSA 3.4.6 this is an indication of “evidence of recovery”. However, for P2 primary species at the SG80 level, the assessment team needs to “evaluate whether the cumulative impact of overlapping MSC UoAs hinders the recovery of “main” primary species.” Other MSC UoAs which classified this bait (Japanese sardine/Japanese Sardine) as a main species include the Consolidated Atlantic albacore tuna longline fishery (Jones et al. 2024), the Kiribati albacore, bigeye, and yellowfin tuna longline fishery (Gascoigne et al., 2021), DFC/HEC Western and Central Pacific longline bigeye, yellowfin and albacore tuna fishery (Sieben et al, 2021), American Samoa EEZ tuna longline fishery (Sieben et al, 2023), Japanese pole and line skipjack and albacore tuna fishery (Akroyd & McLoughlin, 2021), Tri Marine Atlantic albacore longline fishery (DiNardo et al., 2021a) and Owasebussan Co. Ltd. North Pacific longline for albacore, yellowfin & bigeye tuna (DiNardo et al., (2021b). Assuming this all came from the Tsushima stock, this comes out at around 8% of the total catch in 2022. This is below the 30% guideline set by the MSC for determining if the UoA combined catches are hindering recovery in a marginal sense under GSA 3.4.6. SG60 and SG80 are preliminarily scored as met. However, because the stock is below the PRI, SG100 is not met.

In relation to the unobserved mortality of main primary species, the team considered the possible issue of ghost fishing caused by discarded or lost fishing gear (monofilament line and hooks). In any case, lost pelagic longline gear is only likely to continue to fish as long as bait remains on the hooks. Bait tends to be stripped relatively quickly off the hooks and as such, the ghost fishing mortality rate associated to lost longlines is usually low (Macfayden et al., 2009). Furthermore, Gilman et al (2021) estimated gear-specific rates of producing abandoned, lost and discarded fishing gear, which although uncertain, was 2.4% (0.01-8.9% 95% CI) for pelagic longline resulting in a relative risk score, which was low compared to other fishing gears (e.g. gillnet, purse seine – FADs). In terms of the UoA, the use of radio beacons and GPS on the mainline mean they are often able to be located even if the mainline breaks when hauling or otherwise. Furthermore, sections of the mainline or individual branchlines are often replaced when deterioration is evident. It was therefore concluded that unobserved mortality

through ghost fishing at the scale of the UoA was highly unlikely to be a significant factor in the fishery's interactions with main primary species to the extent that this will have stock-level effects, but there are inherent uncertainties.

b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI. OR If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.
	Met?			All species: Yes – except striped marlin

Rationale

Based on the harmonised fisheries, the minor primary species in this assessment IO swordfish, blue marlin, skipjack tuna, striped marlin, black marlin and Indo-Pacific sailfish.

Skipjack

The 2023 stock assessment for skipjack tuna estimates the spawning biomass to be above SBMSY and the fishing mortality remains below FMSY with very high probability. Over the history of the fishery, biomass has been well above the adopted limit reference point ($0.2 \times SB_0$). Current spawning biomass is $0.53 \text{ SB}_{2022}/SB_0$ ($0.42\text{--}0.68$ 80% CIs). The most recent estimate of stock status indicates that the stock is above the adopted target reference point and that the current exploitation rate remains well below FMSY with a probability of 98.4%, therefore SG100 is met.

Black marlin

The 2021 stock assessment for black marlin suggested the relative point estimate for this stock in 2019 is in the green zone of the Kobe plot with $F_{2019}/FMSY=0.53$ ($0.22\text{--}1.05$) and $B_{2019}/BMSY=1.98$ ($1.42\text{--}2.57$). It is therefore not subject to overfishing and is currently not overfished. However, estimates are not considered reliable for management due to a high degree of uncertainty. UoA catches of the species amount to an estimated 44 t per annum (35 t high seas area, 9 t Mauritius EEZ) significantly lower than 30% (the threshold below which fisheries would not ordinarily hinder recovery of the species under GSA3.4.6) of the total catch in the Indian Ocean (~16,977 t in 2020). B_{2019}/B_0 (95% CI) = 0.73 ($0.53\text{--}0.95$), therefore SG100 is met.

Swordfish

The 2023 stock assessment for swordfish indicated the stock is in the green zone of the Kobe plot with $F_{2021}/F_{MSY}=0.60$ (0.43- 0.77 – 80% CI) and $SB_{2021}/SB_{MSY}=1.39$ (1.01-1.77 – 80% CI). It is therefore not subject to overfishing and is currently not overfished. Current fishing mortality is not expected to reduce the population to an overfished state over the next decade given reductions in longline catch between 2019 and 2022, with spawning biomass projected to remain relatively stable with a high probability of it being maintained at or above SB_{MSY} for the long term. There is a very low risk of exceeding MSY -based reference points by 2031 if catches are maintained at 2021 levels. Therefore, SG100 is met.

Striped marlin

No. There were two stock assessments in 2021 for striped marlin, with both models consistent in their determination that the stock is in the red zone of the Kobe plot with the less pessimistic SS3 model predicting $F_{2019}/F_{MSY}=2.04$ (1.35-2.93 – 80% CI) and $SB_{2019}/SB_{MSY}=0.47$ (0.35-0.63 – 80% CI). It is therefore subject to overfishing and is currently overfished. The outlook for the stock is pessimistic, and a substantial decrease in fishing mortality (to catch levels currently below 2020 levels) is required to ensure a reasonable chance of stock recovery in the foreseeable future. SG100 is not met.

Indo-Pacific sailfish

The 2022 stock assessment for Indo-Pacific sailfish suggested $F_{2019}/F_{MSY}=0.98$ (0.65-1.42 – 80% CI) and $B_{2019}/B_{MSY}=1.17$ (0.94-1.42 – 80% CI). It is therefore not subject to overfishing or overfished. The results indicate that there has been a 41% decline in SPR since 1970. B/B_{MSY} declined consistently from the early-1980s, while F/F_{MSY} gradually increased from 1980, peaking in 2018 at 1.1. UoA catches of the species amount to an estimated 29 t per annum (23 t high seas area, 6 t Mauritius EEZ), significantly lower than 30% (the threshold below which fisheries would not ordinarily hinder recovery of the species under GSA3.4.6) of the total catch in the Indian Ocean (~37,310 t in 2021). The latest (2019) estimate of B/B_{MSY} was 1.17, while the F/F_{MSY} estimate was 0.98. So it is highly likely that Indo-Pacific sailfish is above the PRI (assumed to be 0.5 B_{MSY} based on GSA2.2.3.1), therefore SG100 is met

Blue marlin

The 2022 stock assessment for blue marlin estimated that the current biomass (2020) was below B_{MSY} ($B_{2020}/B_{MSY} = 0.73$) and fishing mortality was above F_{MSY} ($F_{2020}/F_{MSY} = 1.13$). There has been a steady increase in fishing mortality on the stock since the 1980s, which has continued unabated. On the weight-of evidence available, the blue marlin stock is determined to be overfished and subject to overfishing. No limit reference point is defined in for blue marlin, however B_{2020}/B_{MSY} (95% CI) = 0.73 (0.51 – 0.99 -95% CI) so it is highly likely that blue marlin is above the PRI (assumed to be 0.5 B_{MSY} based on GSA2.2.3.1). Nevertheless, the lower bound of the 95% confidence interval is very close to 0.5 B_{MSY} . UoA catches of the species amount to an estimated 178 t per annum (101 t high seas area, 77 t Mauritius EEZ), significantly lower than 30% (the threshold below which fisheries would not ordinarily hinder recovery of the species under GSA3.4.6) of the total catch in the Indian Ocean (~5,772 t in 2021). Therefore SG100 is met.

Overall Performance Indicator (PI) Rationale

Draft scoring range	≥ 80 However, due to lack of complete data set, we have precautionarily scored this as SG 60 – 79.
Information gap indicator	More information sought
Data-deficient? (Risk-Based Framework needed)	No

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a partial strategy in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a strategy in place for the UoA for managing main and minor primary species.
	Met?	All species: Yes	All species: Yes	All species: No

Rationale

For P1 species that would be primary in each others UoA, see P1 scoring for information.

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8): - “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere. - A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically. - A “strategy” represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome, and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

Except for the bait species, all main primary species are subject to the following IOTC Resolutions (to the extent these apply to longline fisheries):

- Resolution 15-01 On the recording of catch and effort by fishing vessels in the IOTC area of competence
- Resolution 15-02 Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPC's)
- Resolution 15-10 On target and limit reference points and a decision framework
- Resolution 14-02 for the conservation and management of tropical tuna stocks in the IOTC area of competence.
- Resolution 14-05 concerning a record of licensed foreign vessels fishing for IOTC species in the IOTC area of competence and access agreement information

- Resolution 10-08 concerning a record of active vessels fishing for tunas and swordfish in the IOTC area

Japanese sardine

The relevant fishery as outlined in PI 2.1.1a is the Japanese sardine fishery off Japan. It is predominately a Japanese one; however, according to Yatsu (2019), the Pacific stock of Japanese sardine is targeted by Chinese vessels just outside the Japanese EEZ, near Hokkaido Island and it is evident that in recent years (>2019) catches from foreign fleets (Russia and China) have increased (FRA, 2023a). As the client is purchasing this bait from Japan, only Japanese management is discussed below. A review of bait purchase information indicates that the quantities of bait used by the UoA fleet annually are negligible.

As per MSC guidance, minor species are default meeting SG80.

Management strategy evaluation				
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	All species: Yes	All species: No	All species: No

Rationale

For P1 species that would be primary in each others UoA, see P1 scoring for information.

Japanese sardine (Japanese Pacific and Tsushima stocks)

Available information suggests that the Japanese Pacific stock is currently above PRI, but the Japanese Tsushima stock is below the PRI (FRA 2023a, 2023b). Projections undertaken indicate that for the Pacific stock indicate a 100% probability of the stock remaining at and rebuilding to the TRP by 2031 if fishing mortality is set at 1.2 FMSY until 2023 (with catches around 922,000 t in 2023) and then remains from 2024 around 0.85 FMSY (FRA, 2023a). Projections undertaken for the Tsushima stock indicate a 66% probability of the stock rebuilding to the TRP by 2031 if fishing mortality does not exceed 0.80 FMSY from 2021 to 2023 (with catches around 143,000 t in 2023) and 0.75 FMSY after 2024 (FRA, 2023b). For the Pacific stock, fishing mortality has exceeded FMSY since 2019 as catches from foreign fleets (Russia and China) have increased (FRA, 2023a). This should provide some objective basis for confidence that the management measures in place will work, at least at the UoA level and furthermore, not hinder the recovery of the Tsushima stock, SG60 only are preliminarily scored as met for both stocks.

As per MSC guidance, minor species are default meeting SG80.

C	Management strategy implementation			
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a).
	Met?		All species: Yes	All species: No

Rationale

For P1 species that would be primary in each others UoA, see P1 scoring for information.

Evidence for implementation of the partial strategies/strategies for all primary species includes VMS and at-sea observer data, landings data (port sampling), logbooks, bait volumes purchased, and the MCS system as described under Principle 3. The low level of UoA catches compared to the total catches of the main primary species (explained in scoring issue b) provides some evidence that the partial strategies are being implemented successfully at the UoA level. Furthermore, for Indian Ocean yellowfin and bigeye tuna, evidence suggests the national Taiwanese and Malaysian fleets are adhering to the catch limits imposed by both IOTC Resolutions 21-01 and 05-01 respectively. While some overfishing at a global level is occurring, all primary main species with the exception of Japanese Tsushima stock are above the PRI but as outlined in PI 2.1.1a meeting SG80.

As per MSC guidance, minor species are default meeting SG80.

d	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	NA	NA	NA

Rationale

No primary species are sharks in the UoA so this issue is not scored.

e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species,

			and they are implemented as appropriate.	and they are implemented, as appropriate.
	Met?	NA	NA	NA

Rationale

There is unlikely to be unwanted catch for target main primary stocks. Therefore, this scoring issue is not scored.

Overall Performance Indicator (PI) Rationale

Draft scoring range	60 – 79
Information gap indicator	More information is sought regarding management of catches of different species for the UoA.

PI 2.1.3 – Primary species information

PI 2.1.3	Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
----------	--	--	--

Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on main primary species with respect to status.
	Met?	No	No	No

Rationale

For P1 species that would be primary in each others UoA, see P1 scoring for information.

Despite information obtained from similar longline tuna fisheries operating in the Indian Ocean, specific data on the catch composition and bycatch rate of non-target species in this fishery was not available at the time of the pre-assessment for this particular fishery. Whilst estimates of species outcome and management measures can be made using these similar data, PI2.1.3 cannot be scored at this stage because there is no observer nor logbook data available for the specific fishery under assessment. Therefore, SG60 is not met.

.

b	Information adequacy for assessment of impact on minor primary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor

				primary species with respect to status.
	Met?			Yes

Rationale

Despite information obtained from similar longline tuna fisheries operating in the Indian Ocean, specific data on the catch composition and bycatch rate of non-target species in this fishery was not available at the time of the pre-assessment for this particular fishery. Whilst estimates of species outcome and management measures can be made using these similar data, PI2.1.3 cannot be scored at this stage because there is no observer nor logbook data available for the specific fishery under assessment. Therefore, SG60 is not met.

C	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main primary species.	Information is adequate to support a partial strategy to manage main primary species.	Information is adequate to support a strategy to manage all primary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	No	No	No

Rationale

Despite information obtained from similar longline tuna fisheries operating in the Indian Ocean, specific data on the catch composition and bycatch rate of non-target species in this fishery was not available at the time of the pre-assessment for this particular fishery. Whilst estimates of species outcome and management measures can be made using these similar data, PI2.1.3 cannot be scored at this stage because there is no observer nor logbook data available for the specific fishery under assessment. Therefore, SG60 is not met.

Overall Performance Indicator (PI) Rationale

Draft scoring range	< 60
Information gap indicator	More information is sought regarding UoA catches of different species.

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	Main secondary species are likely to be above biologically based limits. OR If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are highly likely to be above biologically based limits. OR If below biologically based limits, there is either evidence of recovery or a demonstrably effective partial strategy in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.	There is a high degree of certainty that main secondary species are above biologically based limits.
	Met?	No	No	No

Rationale

In lieu of fishery-specific catch composition data, the information listed in Table 9 is a compilation of data obtained from other MSC certified longline tuna fisheries in the Indian Ocean. Therefore, the scores for this PI have been harmonised with those in the MSC reports.

Based on the data from similar fisheries, no main secondary species were identified. However, without specific data from the fishery, confirmation that there are no main secondary species associated with this fishery is not possible. Therefore, SG60 is not met as a precaution.

Minor secondary species stock status				
b	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			No

Rationale

Further information is sought on the catch composition through the provision of at-sea observer data for the UoA fleet. This is required in order to finalise the list of minor secondary species. However, it is highly likely that a number of these species will be data-deficient, triggering the RBF. It is not anticipated that the RBF will be applied to minor species; and therefore SG100 cannot be met.

Overall Performance Indicator (PI) Rationale

Draft scoring range	< 60
Information gap indicator	More information is sought regarding UoA catches of different species.
Data-deficient? (Risk-Based Framework needed)	Not at this stage

PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a partial strategy in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a strategy in place for the UoA for managing main and minor secondary species.
	Met?	Main – No Minor species – Yes (default)	Main – No Minor species – Yes (default)	Main – No Minor species – No

Rationale

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8): - “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere. - A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically. - A “strategy” represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome, and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

Secondary species are subject to the following IOTC Resolutions (to the extent these apply to longline fisheries):

- Resolution 15-01 On the recording of catch and effort by fishing vessels in the IOTC area of competence
- Resolution 15-02 Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPC's)
- Resolution 15-10 On target and limit reference points and a decision framework
- Resolution 14-02 for the conservation and management of tropical tuna stocks in the IOTC area of competence.

- Resolution 14-05 concerning a record of licensed foreign vessels fishing for IOTC species in the IOTC area of competence and access agreement information
- Resolution 10-08 concerning a record of active vessels fishing for tunas and swordfish in the IOTC area

Main species

Based on assumptions no main secondary species were identified. Although the footprint of the UoA fishery is likely to be small and therefore a key factor in constraining the UoA impact on the species concerned, the data to determine this for both fleets is lacking at this stage. It is recommended that more detailed data are provided on retained and discarded UoA fleet catch so that there is greater certainty on which secondary species should be considered as 'main'. Given this couldn't be completed at this stage SG60 is not met for main secondary species and requires additional data.

Minor species

Note that minor species are only considered at the SG100 level; SG60 and SG80 are therefore met by default. As explained in 2.2.1b, the complete list of minor primary species should be known before this can be scored. SG100 is not met.

Management strategy evaluation				
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	Main – No Minor species – Yes (default)	Main – No Minor species – Yes (default)	Main – No Minor species – No

Rationale

Main species

Based on the data, no main secondary species were identified. Although the footprint of the UoA fishery is likely to be small and therefore a key factor in constraining the UoA impact on the species concerned, the data to determine this for both fleets is lacking at this stage. It is recommended that more detailed data are provided on retained and discarded UoA fleet catch so that there is greater certainty on which secondary species should be considered as 'main'. Given this couldn't be completed at this stage SG60 is not met for main secondary species and requires additional observer data.

Minor species

Note that minor species are only considered at the SG100 level; SG60 and SG80 are therefore met by default. As explained in 2.2.1b, the complete list of minor primary species should be known before this can be scored. SG100 is not met

C	Management strategy implementation			
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	Met?		No	No

Rationale

As there is no fishery-specific data related to catch composition and information on bycatch rates, species, etc., there is no way to determine if there are main secondary species associated with this fishery. Other similar MSC fisheries data has been used as a reference to estimate the type of species interacted with. However, this is not conclusive and cannot be used to definitively state that there are no secondary main species associated with the fishery. Therefore, at this stage, there is also no way to determine the implementation of a management strategy for main nor minor secondary species and SG80 is not met.

d	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	Yes	No	No

Rationale

- The MSC Fisheries Standard v2.01 describes the difference between the scoring guideposts for shark finning using the following benchmark: SG 60 “some external validation” should be understood to indicate a validation level equivalent to a nominal observer coverage of 5% of effort, although the CAB may accept other rates and alternative measures/evidence (e.g., dockside monitoring) with sufficient justification that the same scientific outcome (likely confidence that finning is not taking place) is delivered.
- At SG 80 “good external validation” should be understood to indicate a validation level equivalent to a nominal observer coverage of 20% of effort, although the CAB may accept other rates and alternative measures/evidence with sufficient justification that the same scientific outcome (highly likely confidence that finning is not taking place) is delivered.

At SG 100 “comprehensive external validation” is required. This gives consideration of the continuity of data collection, precision and accuracy of information, and any bias, etc, that is capable of supporting the measures in place given the level of precaution that is implicit in the measures and the ability of the measures for detecting any changes.

Based on the existing information obtained from similar longline tuna fisheries in the Indian Ocean, some minor secondary species are sharks have been identified, including blue shark, silky shark, oceanic whitetip, shortfin mako, and different species of thresher shark. There is likely to be further species once further data is procured.

There is a binding 5% observer coverage level set by the IOTC under IOTC Resolution 11-04 for all longline vessels fishing in the Indian Ocean that are over 24 metres in length and under 24 metres in length if they fish outside their Exclusive Economic Zone (EEZ). IOTC Resolution 17-05 On the conservation of sharks caught in association with fisheries managed by IOTC requires CPCs to take necessary measures to fully utilise their catches of sharks, with the exception of species prohibited by the IOTC. For sharks landed fresh, IOTC Resolution 17-05 requires CPCs to prohibit the removal of shark fins on board vessels and the landing, retention on-board, transshipment and carrying of shark fins which are not naturally attached to the shark carcass. For sharks landed frozen, there is the option for CPCs to require their vessels to not have on board fins that total more than 5% of the weight of sharks on board, up to the first point of landing. Furthermore, CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures. The binding 5% observer coverage set by the IOTC (Res. 11-04) is sufficient to meet the MSC Fisheries Standard v2.01 benchmark for SG60.

Review of alternative measures to minimise mortality of unwanted catch				
e	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate.
	Met?	Main – No Minor species – Yes (default)	Main – No Minor species – Yes (default)	Main – No Minor species – No

Rationale

As there is no fishery-specific data related to catch composition and information on bycatch rates, species, etc., there is no way to determine if there are main secondary species associated with this fishery. Other similar MSC fisheries data has been used as a reference to estimate the type of species interacted with. However, this is not conclusive and cannot be used to definitively state that there are no secondary main species associated with the fishery. Likewise, there has been no evidence provided to the assessment team that there is a review of the effectiveness and practicality of alternative measures to reduce the measures to these species. SG60 cannot be met without further fishery-specific information.

Overall Performance Indicator (PI) Rationale

Draft scoring range	< 60
Information gap indicator	More information sought on UoA catches of different species.

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main secondary species with respect to status.	Some quantitative information is available and adequate to assess the impact of the UoA on main secondary species with respect to status.	Quantitative information is available and adequate to assess with a high degree of certainty the impact of the UoA on main secondary species with respect to status.
		OR	OR	
		If RBF is used to score PI 2.2.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	If RBF is used to score PI 2.2.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	
	Met?	No	No	No
Rationale				
Despite the use of catch composition data from other similar MSC-certified longline tuna fisheries in the Indian Ocean, a definitive list of bycatch species has not been able to be produced for the fishery under assessment. As a result, we have been able to determine a distinction between those that would be considered to be “main” and “minor” based on their percentage composition to the total catch rate. Based on this lacking fishery-specific data, we are unable to score this element SG60.				

b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			No
Rationale				

Further information is sought on the catch composition through the provision of data for the UoA fleets. This is required in order to finalise the list of minor secondary species and their management and level of information will need to be assessed. SG100 cannot be scored with currently available information. SG100 is not met.

C	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main secondary species.	Information is adequate to support a partial strategy to manage main secondary species.	Information is adequate to support a strategy to manage all secondary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Main – No Minor species – Yes (default)	Main – No Minor species – Yes (default)	Main – No Minor species – No

Rationale

Further information is sought on the catch composition through the provision of third-party observer data for the UoA fleets. Without fishery-specific observer data on bycatch of this fishery, there is no way to determine the catch composition and whether there are any species meeting the >5% requirement to be designated as “main” or “minor”. Estimates of this information have been obtained through similar MSC certified longline tuna fisheries in the Indian Ocean, but this is not sufficient evidence to definitively state the impact on secondary species and thus whether the management measures in place are adequate to support them. SG60 is not met.

Note that minor species are only considered at the SG100 level; SG60 and SG80 are therefore met by default

Overall Performance Indicator (PI) Rationale

Draft scoring range	< 60
Information gap indicator	More information sought on UoA catch composition.

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/ stock are known and likely to be within these limits.	Where national and/or international requirements set limits for ETP species, the combined effects of the MSC UoAs on the population /stock are known and highly likely to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a high degree of certainty that the combined effects of the MSC UoAs are within these limits.
	Met?	NA	NA	NA
Rationale It is clear from the lack of information provided by the UoA fleet at this stage that logbook records and limited at-sea observer and EM data do not support an accurate understanding or estimation of ETP interactions (i.e. negligible recorded interactions). Furthermore, the limited independent data and at-sea observer data for the fleet doesn't allow the team to determine the true extent of ETP interactions (i.e. through an inability to scale up observer data to the logbook target species catch). Consequently, analytical assessment of ETP interactions and evaluation of the direct effects of the UoA cannot occur at this stage. Further information is sought on the catch composition through the provision of final at-sea observer data for the UoA fleets. SG60 cannot be scored with currently available information and additional observer data is sought. However, there are no national and/or international requirements where limits for ETP species are set. PI 2.3.1-a is considered not relevant.				

b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not hinder recovery of ETP species.	Direct effects of the UoA are highly likely to not hinder recovery of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	Met?	No	No	No
Rationale It is clear from the lack of information provided by the UoA fleet at this stage that logbook records and limited at-sea observer and EM data do not support an accurate understanding or estimation of ETP interactions (i.e. negligible				

recorded interactions). Furthermore, the limited independent data and at-sea observer data for the fleet doesn't allow the team to determine the true extent of ETP interactions (i.e. through an inability to scale up observer data to the logbook target species catch). Consequently, analytical assessment of ETP interactions and evaluation of the direct effects of the UoA cannot occur at this stage.

In relation to the unobserved mortality of ETP species, the team considered the possible issue of ghost fishing caused by discarded or lost fishing gear (monofilament line and hooks). In any case, lost pelagic longline gear is only likely to continue to fish as long as bait remains on the hooks. Bait tends to be stripped relatively quickly off the hooks and as such, the ghost fishing mortality rate associated to lost longlines is usually low (Macfayden et al., 2009). Furthermore, Gilman et al (2021) estimated gear-specific rates of producing abandoned, lost and discarded fishing gear, which although uncertain, was 2.4% (0.01-8.9% 95% CI) for pelagic longline resulting in a relative risk score, which was low compared to other fishing gears (e.g. gillnet, purse seine – FADs). Furthermore, sections of the mainline or individual branchlines are often replaced when deterioration is evident. It was therefore concluded that unobserved mortality through ghost fishing at the scale of the UoA was highly unlikely to be a significant factor in the fishery's interactions with ETP species to the extent that this will have stock-level effects, but there are inherent uncertainties.

Further information is sought on the catch composition through the provision of final at-sea observer data for the UoA fleets. SG60 cannot be scored with currently available information and additional observer data is sought.

C	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be highly likely to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the UoA on ETP species.
	Met?		No	No

Rationale

For the same reasons as outlined in SI(b), indirect effects cannot be considered highly likely to not create unacceptable impacts on the ETP species. SG80 is not met

Overall Performance Indicator (PI) Rationale

Draft scoring range	< 60
Information gap indicator	More information sought on UoA catch composition.
Data-deficient? (Risk-Based Framework needed)	Not at this stage

PI 2.3.2 – ETP species management strategy

PI 2.3.2	The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species
----------	--

Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are measures in place that minimise the UoA-related mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a comprehensive strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to achieve above national and international requirements for the protection of ETP species.
	Met?	Elasmobranchs –Yes Marine turtles – Yes Seabirds – Yes Cetaceans – Yes	Elasmobranchs –No Marine turtles – No Seabirds – No Cetaceans – No	Elasmobranchs –No Marine turtles – No Seabirds – No Cetaceans – No

Rationale

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8): -

- “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.
- A “strategy” represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome, and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.
- A “comprehensive strategy” is a complete and tested strategy made up of linked monitoring, analyses, and management measures and responses.

All ETP species

Based on published MSC assessments of other longline fisheries (e.g. Reunion Island Swordfish Fishery) within the Indian Ocean, the UoA fleets are likely to interact with various elasmobranch, marine turtle, seabird and cetacean species. Therefore, we considered it prudent in the absence of information to assess these ETP groups in Management and Information PIs.. There is a binding 5% observer coverage level set by the IOTC under IOTC

Resolution 11-04 for all longline vessels fishing in the Indian Ocean that are over 24 metres in length and under 24 metres in length if they fish outside their Exclusive Economic Zone (EEZ). The regional observer scheme aims to collect independent fishery information on interactions with, inter alia, ETP species during longline operations, which inform management decision-making. Furthermore, IOTC Resolution 15-01, requires all CPCs to record all catches of (or interactions with) ETP species, including marine turtles, seabirds, elasmobranchs and marine mammals and under IOTC Resolution 15-02, supply this data to the IOTC, which sets out mandatory statistical reporting requirements for IOTC CPCs. IOTC also requires CPCs to develop and implement national plans of actions (NPOAs) to protect sharks and seabirds and implement FAO guidelines to reduce fisheries impacts on marine turtle species. The IOTC reviews annually the status of development and implementation of NPOAs and FAO Guidelines. As of 2024, Taiwan has developed a NPOA for sharks and seabirds, which were both implemented in 2006 and subsequently revised in 2012 and 2014 respectively. Under the Taiwanese national Wildlife Protection Act 2013, all marine turtles are listed as protected species and all fishing vessels must carry line cutters, de-hookers and hauling nets in order to facilitate the appropriate handling and prompt release of marine turtles caught or entangled. As of 2024, Malaysia has a NPOA for sharks, which was implemented in 2006 and revised in 2014 but there is not one in place for seabirds. There is a NPOA in place for marine turtles since 2008, which is currently under review. Malaysia has implemented in regulation requirements for all fishing vessels to carry line cutters and de hookers on board to assist in post-release survival of marine turtles. Release and discard tables are also included in the updated logbook for recording any interaction with ETP species.

Elasmobranchs

The IOTC has implemented various Resolutions for elasmobranch species. IOTC Resolution 17-05 which stipulates inter alia, that all sharks retained on board vessels should be fully utilised and the practice of shark finning is prohibited for sharks landed fresh. For sharks landed frozen, there is the option for CPCs to require their vessels to not have on board fins that total more than 5% of the weight of sharks on board, up to the first point of landing. Furthermore, CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures. IOTC Resolution 17-05 also requires that CPCs shall, to the extent possible, encourage the release of live sharks, especially juveniles and pregnant sharks that are caught incidentally and are not used for food and/or subsistence. CPCs shall require that fishers are aware of and use identification guides (e.g. IOTC Shark and Ray Identification in Indian Ocean Fisheries) and handling practices. Within IOTC Resolution 13/06 and 12/09 there is also species-specific management for oceanic whitetip sharks and thresher sharks. Both these sharks are prohibited from being retained and if an individual is caught, CPCs should ensure they are released as soon as possible after being brought alongside the vessel, and in a manner that results in as little harm to the shark as possible. There are also various reporting requirements in place under IOTC Resolution 15-02 in relation to catches of sharks, estimates and life status of discards and size frequencies. IOTC Resolution 19-03 encompasses all species in the family Mobulidae, which includes mantas and devil rays, which stipulates, inter alia, that CPCs are prohibited from targeted fishing or intentional setting on mobulid rays. CPCs are prohibited from retaining any of these species and if an individual is caught, CPCs should ensure they are released as soon as possible after being brought alongside the vessel, and in a manner that results in as little harm to the species as possible. There are also various reporting requirements in place.

Marine Turtles

The IOTC has implemented Resolution 12-04 to address marine turtle bycatch, which stipulates inter alia, that CPCs collect (through logbooks and observer data) and provide to the IOTC Secretariat, all data on their vessels' interactions with marine turtles. The data shall include the level of coverage and an estimation of total mortality of marine turtles incidentally caught in fisheries. Furthermore, CPCs must report to the IOTC on successful mitigation measures and other impacts on marine turtles in the IOTC area, such as the deterioration of nesting sites and swallowing of marine debris as well as progress of implementation of the FAO Guidelines and this Resolution. Lastly, it requires fishers to bring aboard, if practical, any captured marine turtle that is comatose or inactive as soon as possible and foster its recovery, including aiding in its resuscitation, before safely returning it to the water. CPCs shall ensure that fishermen are aware of and use proper mitigation, identification, handling and de-hooking techniques and keep on board all necessary equipment for the release of marine turtles, in accordance with handling guidelines in the IOTC Marine Turtle Identification Cards.

Seabirds

The IOTC has implemented Resolution 23-07 to address seabird bycatch, which stipulates inter alia, that CPCs record data on seabird incidental bycatch by species and report these annually and seek to achieve reductions in levels of seabird bycatch across all fishing areas, seasons, and fisheries through the use of effective mitigation measures, while giving due consideration to the safety of crew members and the practicability of mitigation measures. Importantly, in the area south of 25 degrees South latitude, CPCs shall ensure that all longline vessels use at least two of the three proposed mitigation measures (to include night setting with minimum deck lighting, bird-scaring lines (Tori lines) and line weighting). These measures should also be considered for implementation in other areas, as appropriate, consistent with scientific advice. According to the ACAP the combined use of some of these measures (weighted branch lines, bird scaring lines (tori lines) and night setting) represents best practice to mitigate seabird bycatch in pelagic longline fisheries (ACAP, 2022). However, ACAP has advised recommends the use of night setting, bird scaring line and branch line weighting simultaneously instead of the use of two of the three measures. Furthermore, Resolution 23-07 does not include the option for the use of underwater bait setting devices as a stand-alone measure and specifies branch line weighting options different to those currently recommended by ACAP. Resolution 23-07 requires the Scientific Committee to review and make recommendations to the Commission on advancements and best practice in seabird bycatch mitigation as they become available. This will include, by 2024 at the latest, developing advice to the Commission on best practice branch line weighting. Improved alignment of Resolution 23-07 with ACAP best practice advice would help further reduce the incidental bycatch of seabirds in IOTC longline fisheries.

Cetaceans

The IOTC has implemented Resolution 23-06 to address cetacean bycatch. While most of the measures contained within are mainly aimed at purse-seine and gillnet fisheries, there are some measures that relate to longline including: reporting requirements and that the IOTC SC develop best practice guidelines for the safe release and handling of encircled cetaceans, taking into account those developed in other RFMOs, including the WCPFC, and that these guidelines be submitted to the Commission for endorsement by 2025 at the latest. Furthermore, it is a requirement that CPCs shall endeavour to ensure that fishermen are aware of and use proper mitigation, identification, handling and releasing techniques and keep on board all necessary equipment for the safe release of cetaceans before the guidelines are endorsed by the SC.

Currently, at the UoA level there is no ETP strategy or apparent training. For all UoAs, the RFMO management has practices in place to meet SG60, however with a lack of evidence and fleet management, it is impossible to score higher.

b	Management strategy in place (alternative)			
	Guide post	There are measures in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a strategy in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a comprehensive strategy in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	NA	NA	NA

Rationale

Since there are requirements for protection and rebuilding provided through national ETP legislation or international agreements, the team has only scored scoring issue (a) following SA 3.11.2.1.

c	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	Elasmobranchs –No Marine turtles – No Seabirds – No Cetaceans – No	Elasmobranchs –No Marine turtles – No Seabirds – No Cetaceans – No	Elasmobranchs –No Marine turtles – No Seabirds – No Cetaceans – No

Rationale

Elasmobranchs

Appropriate handling and release methods, statistical reporting and gear requirements, as well as retention bans on selected species are key elements of IOTC Recommendations to reduce impacts on ETP elasmobranchs. At the UoA level, gear requirements are to be verified. Empirical evidence is available that provides some support for the conclusion that the measures are likely to work. For example, survival rates of some species of sharks have been investigated, with correlates of survival identified (e.g. handling methods, amount of trailing gear, state at release). Scientific research also provides evidence that monofilament traces are an effective mitigation technique for sharks (instead of wire traces). For Mobulids, less empirical evidence is available, while best practice handling methods have been promulgated. Whilst there is evidence to show that some of these measures will work (e.g. monofilament branch lines, prohibition on shark finning). It has been noted by the IOTC SC that compliance with reporting

requirements for ETP species, such as sharks is low and creates uncertainty about levels of fishing mortality, with large amounts of unspecified shark catches and for many species no appropriate assessments or analyses (IOTC-2022-WPDCS18-10_Rev2). This is not assisted by the low level of observer coverage in the high seas. Furthermore, IOTC Resolution 17-05 on shark finning does not reflect best practice to prevent shark finning, ignoring the fact that many sharks are stored and transhipped frozen. The extension of the “fins naturally attached” to all shark catches is required to prohibit the removal of fins at sea and would be considered best practice. Despite these IOTC measures appearing to be successfully upheld by similar fisheries, such as those used when estimating bycatch composition for this pre-assessment, without further information on the fishery’s compliance with these measures, including best practice techniques and gear use, the assessment team is unable to score SG60 for this fishery.

Marine turtles

Appropriate handling and release methods, statistical reporting and mitigation measures (e.g. line cutters, scoop/dip nets and de-hookers), as well as retention bans are key elements of IOTC Resolution 12-04 to reduce impacts on marine turtles. Empirical evidence is available that provides some support for the conclusion that the measures are likely to work. For example, scientific research suggests that circle hooks, particularly those which have large minimum widths and are large relative to mouth size of susceptible sea turtles, can reduce hooking interactions or mortality or both. Using fish bait, not squid bait, may also reduce interactions. Whilst there is evidence to show that some of these measures will work (circle hooks, fish bait etc), there is currently a lack of independent evidence (e.g. at-sea observer and EM data) available. It has been noted by the IOTC SC that compliance with reporting requirements for ETP species, such as marine turtles is low and creates uncertainty about levels of fishing mortality. This is not assisted by the low level of observer coverage in the high seas. While marine turtles are protected under various federal and state laws in Malaysia, not all states provide legal protection for sea turtles. Although trade and consumption of turtle eggs is illegal in most states, including Sabah, Sarawak, and Terengganu, it is still allowed in some states in Peninsular. Despite empirical evidence available for some fisheries, without specific evidence or information on the current fishery’s compliance to the IOTC Resolutions and use of best practice techniques, and implementation of circle hooks, SG60 cannot be met.

Seabirds

Appropriate handling and release methods, statistical reporting and mitigation measures (e.g. night-setting with minimal deck lighting, tori lines and weighted branch lines or the option of solely using hook shielding devices), are key elements of IOTC Resolution 23-07 to reduce impacts on seabirds. There is strong empirical information showing that the bycatch mitigation measures set out by RFMOs will reduce impacts on seabirds. This includes years of research findings in pelagic longline fisheries in a variety of southern hemisphere locations, ongoing monitoring in some fisheries, and quantitative analyses of captures, mitigation efficacy and risk. Best practice recommendations are produced by ACAP and the IOTC Resolution 23-07 reflect these but only in part (see SIa). Only in part, however, as the IOTC Resolution 23-07 branch line weighting specifications are not currently considered by ACAP to be within the best practices to mitigate seabird bycatch in pelagic longlines. Whilst there is evidence to show that some of these measures will work (tori lines, line weighting etc), there is currently a lack of independent evidence (e.g. at-sea observer and EM data) available to suggest that the current measures are suitable or that measures for seabirds are being suitably implemented (and thus likely to work) at the UoA level. It has been noted by the IOTC SC that compliance with reporting requirements for ETP species, such as seabirds is

low and creates uncertainty about levels of fishing mortality. This is not assisted by the low level of observer coverage in the high seas. Therefore, SG60 cannot be met.

Cetaceans

Appropriate handling and release methods and statistical reporting are key elements of IOTC Resolution 23-06 to reduce impacts on cetaceans. There is strong empirical information showing appropriate handling and release measures will reduce impacts on cetaceans that are captured in fishing gear. This includes years of research findings in pelagic longline fisheries in a variety of southern hemisphere locations, ongoing monitoring in some fisheries, and quantitative analyses of captures, mitigation efficacy and risk.. There is currently a lack of independent evidence (e.g. at-sea observer and EM data) available to suggest that the current measures are suitable or that measures for cetaceans are being suitably implemented (and thus likely to work) at the UoA level. It has been noted by the IOTC SC that compliance with reporting requirements for ETP species is low and creates uncertainty about levels of fishing mortality. This is not assisted by the low level of observer coverage in the high seas. Therefore, SG60 cannot be met.

Management strategy implementation				
d	Guide post		There is some evidence that the measures/strategy is being implemented successfully.	There is clear evidence that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).
	Met?		No	No

Rationale

Evidence for implementation of the measures or strategies for all ETP species may include: VMS and at-sea observer or EM data and the MCS system as described under Principle 3. Furthermore, it has been noted by the IOTC SC that compliance with reporting requirements for ETP species is low and creates uncertainty about levels of fishing mortality SG80 is not met.

Review of alternative measures to minimize mortality of ETP species				
e	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	Yes	No	No

Rationale

In the absence of appropriate at-sea observer and EM data, the assessment team was unable to determine the discard rate of ETP species, but it is likely to be high and required for some species and thus this scoring issue is considered applicable and thus preliminarily scored here. There is a specific IOTC Working Party on Ecosystems and Bycatch (WPEB) which meets annually and exists to review alternative bycatch management strategies, mitigation measures and stock status with respect to improving existing IOTC Resolutions and provide recommendations to the SC and Commission (see: https://www.iotc.org/sites/default/files/documents/2021/08/IOTC-2021-WPEB17AS_-05_CMM_review.pdf). This is undertaken through a review of catch, interaction and compliance data with Resolutions from a variety of sources (observer, logbooks, port sampling). A variety of information papers, datasets and meeting documents presented to WPEB17 (Assessment Meeting) can be found here: <https://www.iotc.org/meetings/17th-working-party-ecosystems-and-bycatch-wpeb17-assessment-meeting> which provide CPCs with the best available science on ETP mitigation in IOTC fisheries. Stock summaries are provided as part of this work for individual shark species, marine turtles, seabirds and cetaceans (see: https://www.iotc.org/sites/default/files/documents/2021/11/IOTC-2021-WPEB17AS-RE_rev1.pdf).

Recommendations from these meetings are developed and provided to the IOTC SC and Commission. An example of how scientific advice at a regional level is used to determine recommendations and implement effective Resolutions to minimise mortality is the recent IOTC Resolution 19-03 on the conservation of mobulid rays caught in association with fisheries in the IOTC Area of Competence. The SC and WPEB in 2018 both noted declines in mobulids across their range in the IOTC area, based on scientific data presented and recommended that management actions, such as non-retention measures (as a first step considering the precautionary approach) among others, were required to enable these species to recover and must immediately be adopted instead of waiting until 2020. This recommendation led to the Commission in 2019 agreeing there was a need to monitor mobulid interactions with other gears and fleets and reduce their associated mortality. This then led to the implementation of IOTC Resolution 19-03. Other examples of reviews underway include the recent two programs currently underway evaluating the post-release survival of protected species (bigeye thresher shark *Alopias superciliosus* and oceanic whitetip shark *Carcharhinus longimanus*) and the efficiency of the IOTC Resolutions 12-09 and 13-06. The first project-IOTC bigeye thresher shark post-release mortality study project (IOTC BTH PRM Project) (IOTC-2019-WPEB15-16) is coordinated by CAP RUN – CITEB and covered six different fleets (Japan (tropical tuna fleet), Taiwan (tropical tuna fleet), EU: France (Reunion Island), Portugal, and South Africa). The second project - IRD Project POREMO (Bach and Sabarros, 2021) is managed by IRD and covered five fleets EU: France (Réunion Island; LL & PS), Spain (PS), Portugal (LL), and Seychelles (LL) (Bach and Sabarros, 2021). Both programs use pop-up Satellite Archival Tags (PSATs) to evaluate survival rate of released sharks. Another example is the recent discussions between the International Whaling Commission (IWC) and the IOTC Secretariat to discuss the issue of cetacean bycatch in the region and possible strategies for bycatch mitigation. Two workshops have been held to date with representatives from the WPEB, with a series of recommendations on mitigation measures and safe handling and release to be presented to the next WPEB meeting (IOTC-2021-WPEB17(AS)-29.). SG60 is met.

Overall Performance Indicator (PI) Rationale

Draft scoring range	< 60
Information gap indicator	Information insufficient to score PI

PI 2.3.3 – ETP species information

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: - Information for the development of the management strategy; - Information to assess the effectiveness of the management strategy; and - Information to determine the outcome status of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is adequate to estimate the UoA related mortality on ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for ETP species.	Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	Quantitative information is available to assess with a high degree of certainty the magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status of ETP species.
	Met?	No	No	No
Rationale At the regional level, there is sufficient information about ETP species and there is also arguably quantitative information about some ETP stocks/populations (e.g. various shark, seabird, cetacean and marine turtle species) that interact with this type of fishery under assessment. It is clear from the information provided by the UoA fleet at the PA stage that logbook records do not support an accurate understanding or estimation of ETP interactions (i.e. negligible interactions). Furthermore, the absence of sufficient at-sea observer or EM data for both UoA fleets doesn't allow the team to determine the true extent of ETP interactions (i.e. through an inability to scale up at-sea observer/EM data, or qualitative determine those species which interact with the UoA). Consequently, analytical assessment of ETP interactions and evaluation of the direct effects of the UoA cannot occur at the pre-assessment stage. Further information is sought on the catch composition through the provision of final at-sea observer and/or EM data for the UoA fleet. SG60 cannot be scored with currently available information and additional observer data is sought.				

b	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage the impacts on ETP species.	Information is adequate to measure trends and support a strategy to manage impacts on ETP species.	Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
	Met?	No	No	No

Rationale

For all ETP species, there is an extensive information base collected from research and technical work conducted in pelagic longline fisheries to support measures to manage the UoA's impacts on ETP species. Research and technical findings have been promulgated in research reports, scientific papers, conferences and through RFMO meetings. However, it is clear from the information provided by the UoA fleet at the pre-assessment stage that logbook records do not support an accurate understanding or estimation of ETP interactions (i.e. no interactions). Furthermore, the absence of sufficient at-sea observer or EM data for both UoA fleets doesn't allow the team to determine the true extent of ETP interactions (i.e. through an inability to scale up at-sea observer/EM data or qualitative determine those species which interact with the UoA). Consequently, analytical assessment of ETP measures required by the UoA cannot occur at this stage. Further information is sought on the catch composition through the provision of final at sea observer and EM data for the UoA fleetSG60 cannot be scored with currently available information and additional observer data is sought.

Overall Performance Indicator (PI) Rationale

Draft scoring range	< 60
Information gap indicator	More information is sought on UoA vessels' interactions with ETP species.

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	Yes	Yes	Yes

Rationale

This fishery under assessment takes place offshore, in deep water between depths of typically 60 m to a maximum of 180 m and is highly unlikely to interact with benthic features. The gear impact on the water column – epipelagic habitat (considered here as the commonly encountered habitat, in line with MSC interpretation <https://mscportal.force.com/interpret/s/article/pelagic-habitats-and-gear-Box-GSA7-1527262009346>) is considered negligible. The gear passes through these habitats on shooting and hauling and remains in situ during the set. The gear has no long-term impacts on these habitats after it is hauled, unless it is lost. Gear loss may consist of monofilament and/or hooks, which could interact with the commonly encountered habitat and eventually encounter the seabed. Interactions with benthic features, at a scale where irreversible impacts on habitat types becomes a risk, are only likely to occur when longlines are dragged across the seabed. This is extremely unlikely in the case of this fishery considering the fishing depth and longline gear. Discarding of rubbish at sea could reduce some of the functions of the commonly encountered habitat and reduce water quality, however it is highly unlikely that the volume of discards would create serious or irreversible harm and observer records need to be checked to see if this is an issue. There is evidence that the fishery under assessment is highly unlikely to reduce structure and function of any habitats to a point where there would be serious or irreversible harm. Therefore SG60, SG80 and SG100 are met.

b	VME habitat status			
	Guide post	The UoA is unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.

	Met?	NA	NA	NA
Rationale				
See Section 9.1.8 and PI 2.4.1a rationale. This fishery does not interact with VMEs as defined in GSA 3.13.3.2. This scoring issue is not relevant.				

C	Minor habitat status			
	Guide post			There is evidence that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	Met?			Yes
Rationale				
See Section 9.1.8 and PI 2.4.1a rationale. SG100 is met.				

Overall Performance Indicator (PI) Rationale

Draft scoring range	≥ 80
Information gap indicator	Information sufficient to score PI
Data-deficient? (Risk-Based Framework needed)	No

PI 2.4.2 – Habitats management strategy

PI 2.4.2	There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats		
-----------------	--	--	--

Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	Yes	Yes	No

Rationale

The term “if necessary” is used in the management strategy PIs at SG60 and SG80 for habitats. This is to exclude the assessment of UoAs that do not impact the relevant component at these SG levels. Given that the fishery is unlikely to impact benthic habitats, SG60 and SG80 would be met by default for the management in place.

There is, however, no strategy in place which specifically aims to manage the impacts of the fishery on habitat types (either directly or through ghost fishing), as required by MSC for a score of 100, therefore SG100 is not met.

b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some objective basis for confidence that the measures/partial strategy will work, based on information directly about the UoA and/or habitats involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or habitats involved.
	Met?	Yes	Yes	No

Rationale

As detailed in 2.4.2a the key measure is the nature of the fishery (pelagic longline). Knowledge in relation to the way pelagic longline fishing gear is fished, as well as the ocean areas where the UoA fleet operates (open ocean, deep waters) is sufficient to discount any significant impacts on benthic habitats from the fishery and there is objective confidence that it works. SG60 and SG80 are met. The team do not consider that there is a partial strategy in place thus SG100 is not met.

c	Management strategy implementation			
	Guide post		There is some quantitative evidence that the	There is clear quantitative evidence that the partial

			measures/partial strategy is being implemented successfully.	strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	Met?		No	No

Rationale

As there has been no evidence provided at this stage of the pre-assessment that can be used to verify the specific areas where the vessels operate (e.g., through VMS, and/or coordinates of sets reported by observer data), there is no indication that management measures are required for this fishery. Therefore, SG80 is not met.

d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guide post	There is qualitative evidence that the UoA complies with its management requirements to protect VMEs.	There is some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is clear quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	Met?	NA	NA	NA

Rationale

As the fishery does not impact VMEs, SId is not scored as per MSC guidance.

Overall Performance Indicator (PI) Rationale

Draft scoring range	60 – 79
Information gap indicator	Information sufficient to score PI

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are broadly understood. OR If CSA is used to score PI 2.4.1 for the UoA: Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	Yes	No	Yes

Rationale

Fishing takes place in the epipelagic habitat and the distribution of the pelagic habitat is known over the spatial range within which the fishery operates from widely available sea charts and bathymetric maps of the Indian Ocean (DiNardo et al., 2021). The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats. As there is no fishery-specific data demonstrating where the vessels operate (through VMS data, or observer reports on the coordinates of sets), there is no way to verify that the nature, distribution and vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. SG60 is met but SG80 is not.

b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and	The physical impacts of the gear on all habitats have been quantified fully.

		OR	location of use of the fishing gear.	
		If CSA is used to score PI 2.4.1 for the UoA: Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	
	Met?	Yes	No	No

Rationale

Information on the spatial extent and on the timing and location of use of the fishing gear should be collected by VMS (100% coverage) and thus there is accurate, near real-time monitoring of the spatial extent of interaction, and the timing and location of use of the fishing gear. Logbook data is collected from the UoA allowing for the spatial assessment of main impacts on main habitats. Therefore, SG60 and SG80 are met. However reliable data on the location of lost longlines that become beached is not available and this hinders a full understanding of the nature of the impacts of the gear on these habitats (DiNardo et al., 2021), thus SG100 is not met.

	Monitoring			
C	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	Met?		Yes	No

Rationale

Fishing takes place in the epipelagic habitat and the distribution of the pelagic habitat is known over the spatial range within which the fishery operates from widely available sea charts and bathymetric maps of the Indian Ocean (DiNardo et al., 2021). The location of VMEs such as coral reefs throughout the Indian Ocean has also generally been mapped. Information on the spatial extent and on the timing and location of use of the fishing gear is collected by VMS (100% coverage) and thus there is accurate, near real-time monitoring of the spatial extent of interaction, and the timing and location of use of the fishing gear. Logbook data is collected from the UoA allowing for the spatial assessment of main impacts on main habitats. Therefore, SG60 and SG80 are met. However reliable data on the location of lost longlines that become beached is not available and this hinders a full understanding of the nature of the impacts of the gear on these habitats (DiNardo et al., 2021), Adequate information continues to be collected to detect any increase in risk to the main habitats.

Overall Performance Indicator (PI) Rationale

Draft scoring range

60 – 79

Information gap indicator

Information sufficient to score PI

PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	Yes	No	No

Rationale

A number of key ecosystem elements might be disrupted by the fishery, including trophic relationships, size composition, biodiversity, and species distribution. The element considered of primary importance and to be most likely to be threatened by the fishery is that of trophic structure. A fishery can alter the structure and functioning of ecosystems through trophic interactions by removing forage species upon which higher trophic level species depend or through top down trophic cascades or fishing down the food web. The former mechanism is not applicable to this fishery because the fishery does not catch forage species. Andersen and Pedersen (2009) use a size- and trait-based model to explore how marine ecosystems might react to perturbations from different types of fishing pressure. They conclude that cascades are damped further away from the perturbed trophic level. Fishing on several trophic levels leads to a disappearance of the signature of trophic cascades. The ecosystems in which the longline fishery occurs are fished at all trophic levels. Furthermore, Pershing et al. 2015 suggests that trophic cascade regime shifts are rare in open ocean ecosystems and that their likelihood increases as the residence time of water in the system increases. We consider that the fishery is highly unlikely to disrupt trophic structure of the ecosystem to extreme irreversible levels, due to the scale at which the fishery operates relative the scale of species distributions impacted by the fishery – to be confirmed with independent data. The assessment team concludes that it is unlikely that the longline fishery disrupts key elements of ecosystem structure and function to the point where there would be serious or irreversible harm therefore meeting SG60. SG80 is not met for this PI because there is no fishery-specific data on the catch composition, including impact on high trophic level species.

Overall Performance Indicator (PI) Rationale

Draft scoring range	60 – 79
Information gap indicator	More information sought
Data-deficient? (Risk-Based Framework needed)	No

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary, which take into account the potential impacts of the UoA on key elements of the ecosystem.	There is a partial strategy in place, if necessary, which takes into account available information and is expected to restrain impacts of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a strategy that consists of a plan, in place which contains measures to address all main impacts of the UoA on the ecosystem, and at least some of these measures are in place.
	Met?	Yes	Yes	No

Rationale

As detailed in PIs 1.2.3, 2.1.2, 2.2.2, 2.3.2 and 2.4.2, there are management measures, partial strategies and strategies in place for target, non-target, ETP species and habitats (see these PI rationales for further information), which often take the form of IOTC Resolutions that are binding on CPCs. The UoA operates within this regional management framework. The impacts of commercial fishing on albacore and other tuna and billfish stocks are monitored by the IOTC SC, and management measures critically reviewed and updated alongside quantitative evaluations of stock status (See: <https://www.iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-wellother-species-impacted-iotc>). Juan-Jordá et al. (2016) reviewed the IOTC's application of ecosystem-based fisheries management (EBFM) and compared it with that of other tuna RFMOs. They noted that even though the IOTC Convention Agreement does not make reference to the principles of the precautionary approach or EBFM, the Commission has been able to incorporate some elements of global instruments of fishery governance (UNCLOS and UNFSA) into its management measures set out in its binding resolutions. The IOTC has also established the Working Party on Ecosystems and Bycatch (WPEB), which aims to review and analyse matters relevant to bycatch, byproduct and non-target species, which are affected by IOTC fisheries for tuna and tuna-like species (i.e. sharks, marine turtles, seabirds, marine mammals and other fishes), as well as the ecosystems in which they operate; and to develop mechanisms which can be used to better integrate ecosystem considerations into the scientific advice provided to the Commission. On the basis of data for which reporting is mandatory, the WPEB undertakes annual reviews of bycatch issues in the fisheries IOTC manages, and the state of developments and implementation by CPCs of NPOAs for sharks, seabirds and marine turtles. Recent and on-going ecosystem research in the Indian Ocean is also reviewed. The WPEB also provides support to CITES regarding the listing of shark species, in-part supported by the Common Oceans Areas Beyond National Jurisdiction (ABNJ) Tuna Project. Within the southwest Indian Ocean, at a transboundary level, some major conservation initiatives have been implemented in the area so far, such as the Indian Ocean Whale Sanctuary established by the IWC (International Whaling Commission), regional cooperation for the conservation of cetaceans and dugongs supported by the Indian Ocean Commission (consisting of Comoros, Reunion Island

(France), Madagascar, Mauritius, and the Seychelles], and the IOSEA Marine Turtles (MoU on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia) (Laran et al., 2017). For the most part, the range of Resolutions used by the IOTC represents a “partial strategy” that works to achieve the proposed outcome. There is some evidence that this partial strategy is being implemented successfully. For example, the main tuna and billfish stocks are above the PRI. Furthermore, within the IOTC, there is a system of regular assessment, data collection, sharing of information as well as agreement over new and expanded management initiatives through the adoption of IOTC Conservation and Management Measures (https://iotc.org/sites/default/files/documents/2023/09/IOTC_-_Compendium_of_ACTIVE_CMMs_16_September_2023.pdf) Therefore, SG60 and SG80 are scored as met

Management strategy evaluation				
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar UoAs/ ecosystems).	There is some objective basis for confidence that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	Testing supports high confidence that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.
	Met?	Yes	Yes	No

Rationale

There is an objective basis for confidence that the measures at the regional and national level (detailed in Principle 1 and 2 sections of this report), which form part of the measures outlined in PI 2.5.2a will work. As has been presented under Principle 1 and 2 of this report, none of these main tuna and billfish stocks are currently below the PRI (with some around the BMSY). Many of the management measures implemented at IOTC are science-based, i.e., stemming from stock assessments, scientific working groups (e.g. WPEB) and associated analyses or more industry-driven initiatives with the support of government bodies or independent research providers. The UoA fishery applies the IOTC management measures to control the total removals of yellowfin, bigeye and skipjack. There are also specific management measures in place for other species caught by the fishery that also play an important role in the ecosystem (see ETP, primary and secondary species). This provides some objective basis for confidence that the measures will work. SG60 and SG80 are met. Testing in the form of say, ecosystem models for all UoA relevant stocks (e.g. ETP species), has not been undertaken, so SG100 is not met.

Management strategy implementation				
c	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	Met?		Yes	No

Rationale

Compliance with IOTC measures is monitored across the fisheries that operate in the RFMO's jurisdiction. When coupled with stock status assessments (with all main tuna and billfish species being above PRI), this provides some evidence that the measures in place are being implemented successfully. Available ecosystem modelling suggests it is unlikely the fishery under assessment is having an irreversible impact on ecosystem functioning under 2.5.1a. SG80 is provisionally scored as met.

Overall Performance Indicator (PI) Rationale

Draft scoring range	≥ 80
Information gap indicator	Information sufficient to score PI

PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to identify the key elements of the ecosystem.	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Yes	Yes	

Rationale

The key elements of the ecosystems where the longline fishery occurs are as well understood as for any ecosystems of similar scale in the world. Adequate amounts of information of sufficient quality are available to broadly understand the key elements of the ecosystem. Significant quantities of regularly updated data in relation to abiotic ecosystem elements are available from a wide range of sources and entities that monitor and carry out research into environmental (physical and chemical) parameters in the Indian Ocean, SG80 is met.

b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and have been investigated in detail.
	Met?	Yes	Yes	No

Rationale

Most coastal states in the Indian Ocean carry out at least some scientific research and /or monitoring of environmental conditions within the EEZ. A range of organisations that have interests in researching and monitoring global environmental conditions also carries out significant amounts of research in the Indian Ocean. SG80 is met.

c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are known.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are understood.

	Met?		Yes	No
Rationale Information available covers all main areas of relevance in the context of understanding key abiotic and biological elements of the Indian Ocean ecosystem. Information on these ecosystems is accessible through the Large Marine Ecosystem of the World Website (http://lme.edc.uri.edu/). This information covers all main components including, target, primary and secondary species (Pershing & Stamieszkin, 2020). Habitat interaction does not exist with the UoA. SG80 is met.				

d	Information relevance			
	Guide post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		Yes	No
Rationale The main consequences of the fishery can be inferred based on other similar fisheries. SG80 is met.				

e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		Yes	No
Rationale Data collection efforts are maintained to detect any risk from the fishing impact. Participating countries provide input in these meetings and via flag states continued input to IOTC via annual reports ensure this information reaches the RFMO annually. Although not perfect, and the quality of data submitted varies among CPCs, and harmonization efforts are a must. However, information is considered adequate to support the development of strategies in continuing the effort to manage ecosystem impacts. SG80 is met.				

Overall Performance Indicator (PI) Rationale

Draft scoring range	≥ 80
Information gap indicator	Information sufficient to score PI

6.6 Principle 3

6.6.1 Principle 3 background

As with Principle 1, we attempted to harmonise Principle 3 scores with overlapping MSC assessments, and used scoring guidance provided by ISSF (see table below).

Suggested scoring for MSC Principle 3 Performance Indicators (PIs), by RFMO. Sources of scores: Medley et al. 2020 and Medley et al. 2021

MSC PI	IOTC
3.1.1	≥80
3.1.2	≥80
3.1.3	≥80
3.2.1	≥80
3.2.2	≥80
3.2.3	60-79
3.2.4	≥80

6.6.2 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: - Is capable of delivering sustainability in the UoA(s); - Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and - Incorporates an appropriate dispute resolution framework		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	IOTC: Yes	IOTC: Yes	IOTC: No

	Malaysia: Yes	Malaysia: Yes	Malaysia: No
	Seychelles: Yes	Seychelles: Yes	Seychelles: No
	Mauritius: Yes	Mauritius: Yes	Mauritius: No
	Madagascar: Yes	Madagascar: Yes	Madagascar: No

Rationale

IOTC

IOTC For the UoA vessels included in this assessment, the Indian Ocean Tuna Commission (IOTC) is the RFMO responsible for the management of albacore, yellowfin, bigeye and skipjack, as well as for addressing the impacts of fishing on the wider ecosystem of the IOTC area of competence, including the high seas areas. The Indian Ocean Tuna Commission (IOTC) promotes cooperation between coastal states and distant water fishing nations for a sustainable management of tuna stocks and associated species. It is the only tuna-RFMO managed by the UN-FAO. However, the Commission is fully autonomous, both functionally and financially, with the budget supported entirely by member contributions. A multilateral treaty, the Agreement for the Establishment of the Indian Ocean Commission, was approved by the Council of the UN-FAO in November 1993 and entered into force in March 1996. The agreement is open to any state that has coasts within the Indian Ocean (or adjacent seas) as well as any state that fishes for tuna in the Indian Ocean Region. As of May 2023, IOTC has 31 members. The IOTC is mandated to manage tuna, tuna-like and associated species in the Indian Ocean and adjacent seas, promote cooperation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilization of stocks and encouraging sustainable development of fisheries based on such stocks. Article XIV of the Agreement enables the parties to commit to binding conservation and management measures. It should be noted that Taiwan cannot be a member or a cooperating party of IOTC as it is not a recognized government by FAO. However, various concessions have been made to allow Taiwan to take part and co-operate in IOTC procedures including the scientific observer program. IOTC's guiding principles are consistent with the provisions of the United Nations Convention on the Law of the Sea (UNCLOS, 1982) and United Nations Fish Stocks Agreement (UNFSA, 1995). UNFSA is the international legal instrument that explicitly establishes the rule that conservation and management measures established by regional fisheries management organizations (RFMOs), are relevant for all States, not only the members of the relevant RFMO. Article 8(3) states that, "Where a sub-regional or regional fisheries management organization has the competence to establish conservation and management measures for straddling fish stocks or highly migratory fish stocks, States fishing for the stocks on the high seas and relevant coastal States shall give effect to their duty to cooperate by becoming members of such organizations or by agreeing to apply the conservation and management measures established by such organization." In support of this provision Article 8(4) stipulates that, "Only those States which are members of such an organization or participants in such an arrangement or which agree to apply the conservation and management measures established by such organizations shall have access to the fishery resources to which those members apply." These two provisions are explicit in that if States do not fulfil either of these conditions they do not have the right to fish on the high seas. Article 87 of the United Nations Convention on the Law of the Sea (UNCLOS, 1982) explicitly limits the freedom of fishing on the high seas. High seas fishing by vessels flying the flag of a State that does not fulfil the conditions set in UNCLOS are considered to be fishing illegally. Also, States may not authorize their nationals to engage in fishing on the high seas unless they adhere to the appropriate conservation measures. Article 64 declares that it is the responsibility of States whose nationals are engaged in the fishing of straddling

stocks and highly migratory species in the high seas to negotiate directly or indirectly through sub-regional and regional fisheries organizations to agree upon the measures necessary for the conservation of these resources. IOTC manages the highly migratory / straddling / shared stocks of tuna, tuna-like and associated species in the IOTC area based catch and scientific data provided by its contracting parties (CPCs) and on the advice of its scientific committees. IOTC resolutions are developed and adopted to ensure the sustainable management of the target species and reducing the fisheries' impacts on the ecosystem in the IOTC area. Resolutions are binding on the Commission members, unless there is a specific objection on the part of a Member and require a two thirds majority of the members present and voting. Recommendations of the Commission are slightly different than Resolutions in that they are not binding on the Members and rely on voluntary implementation. The Commission may, with a majority of its members present and voting, adopt Recommendations concerning the conservation and management of the tuna stocks for furthering the objectives of the IOTC Agreement. As there is an effective national legal system and organised and effective cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2, SG60, SG80 are met. However, SG100 is not met as IOTC's resolutions are binding but some parties may raise an objection and opt out, therefore, some conservation management measures may not be observed by all parties.

Malaysia

Malaysia has agreed to abide by a range of international legally binding and non-binding treaties concerning fisheries that are relevant to the management of flag state fishing vessels that conduct activities in high seas areas. These include the binding United Nations Convention on the Law of the Sea (UNCLOS, 1982), and signing the Biodiversity Convention of 1992. Although Malaysia has not signed the Food and Agriculture Organization (FAO) Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO, 1995a) and the UN Fish Stocks Agreement, many of the management principles are included in its national legislation and IOTC Resolutions. Other non-binding agreements that Malaysia has adopted include the FAO Code of Conduct for Responsible Fisheries (FAO, 1995b) and International Plans of Action (IPOAs) which include

- Prevention, deterrence and elimination illegal, Unreported and Unregulated (IUU) fishing requiring all vessels fishing in Malaysian waters to be licensed and the implementation of MCS mechanisms for compliance;
- Management of fishing capacity which sets a moratorium on the issuance of licenses in coastal areas, establishing fishing zones for conservation and limiting vessel size and fishing gear.
- Conservation and management of sharks through data collection, shark identification and management measures.

Malaysia is party to the IOTC Agreement and its legislation is required to take into account the conservation and management measures set by IOTC. The most relevant to this fishery is Resolution 13/09 on the conservation of albacore caught in the IOTC area of competence. Malaysia cooperates in the development and recommendations for management of highly migratory stocks with IOTC through the collection and sharing of catch and effort data, provision of scientific and compliance advice, and monitoring, control and surveillance initiatives (regional monitoring system (VMS), record of fishing vessels etc.). There are two Acts that are applicable to the management of Malaysia's fisheries:

- Exclusive Economic Act of 1984
- Fisheries Act of 1985 (amended 1993).

Malaysian-flagged fishing vessels fall under the jurisdiction of the Department of Fisheries (DoF). The DoF works under the Fisheries Act of 1985 and regulations made under the Act. The Act is divided into 11 parts: Preliminary, Administration, Fisheries Plans, General Licensing Provisions, Foreign Fishing Vessels, Offences, Turtles and Inland Fisheries, Aquaculture, Marine Parks and Marine Reserves, Enforcement and General Provisions. Some 20 regulations have been passed under the Exclusive Economic Act and Fisheries Act that address fishing, licensing, gear closed seasons, gear, species regulations, international regulations for endangered species, and establishment of MPAs. Malaysia's fisheries legislation is comprehensive and addresses management issues that are relevant to this fishery which include compliance and enforcement requirements, the authorities, right and responsibilities of officials and fishers, MCS mechanism requirements (licensing, dockside and at-sea inspections, VMS, and catch reporting requirements). Sanctions are awarded for non-compliance with Malaysia's fisheries regulations and with regional and international conservation and management measures which include automatic forfeiture of vessels, gear and catches and financial penalties for the captain and crew. Malaysia has implemented various means to control fishing activities of its fishing vessels. The provisions under the Fisheries Act 1985 and its associated regulations provide measures to ensure fishing vessel compliance. Any history of non-compliance is assessed when considering the application for transfer of ownership or licensing of fishing vessels. The laws and regulations include the registration of fishing vessels, authorization to fish in the high seas and compliance with international requirements. A fishing register is maintained by the DOF which consists of information concerning registration number, vessel type, type of fishing gear or methods, port of register etc. Also, the authorization to fish that is issued by the DoF contains the following information: gear type, area of fishing, fish species targeted, fishing time, catch and effort reporting and other relevant conservation and management information. Fishing vessels that are flagged by Malaysia conducting activities in the high seas of the IOTC Area are required to abide by the requirements of the UN Compliance Agreement and Fish Stock Agreement. These agreements provide the legal and technical requirements for Distant Water Fishing Vessels (DWFVs) and management measures for flagged states. On the basis of the above, SG60 and SG80 are met. However, as IOTC's resolutions are binding but some parties, including Malaysia, may raise an objection and opt out, so some conservation management measures may not be observed by all parties, SG100 is not met.

Seychelles

Seychelles is member of the relevant RFMO (IOTC) and has ratified both UNCLOS and the UNFSA. The Fisheries Act (No. 20 of 2014) provides an effective national legal framework, and gives authority to the Minister to enter into agreements with other states, inter-governmental organisations or associations representing foreign fishing vessel owners (The Government of Seychelles (TGS), 2014). This is likely to be sufficient for SG80.

Mauritius

Mauritius is a member of the relevant RFMO (IOTC) and has ratified both UNCLOS and the UNFSA. The Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) provides an effective national legal framework and clearly sets out circumstances when access agreements will be granted (TPM, 2007). SG80 is given here.

Madagascar

The Fisheries and Aquaculture Code (Code de la pêche et de l'aquaculture Loi n°2015- 053) recognises that regional fishery resources shared with neighbouring countries, especially straddling and highly migratory stock must be managed in cooperation with RFMOs and in the framework of international agreements ratified by the Republic of Madagascar. In particular, the harmonisation of management and planning systems, coordinated MCS of fishing vessel activities and the conditions of access to the fishery resources of neighbouring countries. There is therefore a framework for cooperation with other parties set out in national legislation. SG60 is met. Article 11 states specifically states that Madagascar cooperates with neighbouring states that share the high seas in the conservation and management of fishery resources and ecosystems and ensures the implementation of measures for the conservation of aquatic ecosystems with regional organisations of fisheries management. Madagascar is a member of IOTC and the Southwest Indian Ocean Fisheries Commission (SWIOFC), as well as FISH-i Africa, UNCLOS and SADC. In this way there is organised and effective cooperation with other parties, where necessary to deliver management outcomes consistent with MSC Principles 1 and 2. SG80 is met for Sla.

b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: No Madagascar: Yes	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

IOTC There are three mechanisms for dealing with legal disputes at the international level. Disputes can be addressed at the annual meetings of the Commission through consultation and conciliation, technical disputes can be resolved by an expert or technical panel or disputes that remain unresolved at the regional level may be resolved either at the International Court of Justice or the International Tribunal for the Law of the Sea. IOTC has no formal dispute resolution procedure, however, the meetings provide an opportunity to resolve disputes informally. There are not any outstanding disputes regarding the IOTC-managed albacore longline fisheries. There are explicit and transparent decision-making and dispute resolution mechanisms defined and in place. The voting procedures are considered to be effective and there are no outstanding disputes among members. However, the disputes mechanisms have not been tested so only SG60 and SG80 are met and not SG100.

Malaysia

The Fisheries Act 1985 Chapter VI outlines offences and penalties and explains in the case of a dispute what powers the courts have, for example, the cancelling of a license or permit. There is a provision within the legislation for making an appeal to the Minister. Although the need for conflict resolution is rare, there is a dispute resolution mechanism in place. Malaysia uses the English common law system and its court system is based on the English Judicial hierarchy, with the Federal Court, the Court of Appeal, two High Courts, Session Courts and Magistrate Courts. The High Courts of Malaysia include the High Court of Malaya and the High Court of Sabah and Sarawak; each hearing cases within their own jurisdiction. Both courts have equal standing in the hierarchy of the judiciary. The High Courts, generally, hear all criminal cases and all civil cases where the claim exceeds 1 million ringgit. Malaysia's subordinate Courts include the Sessions Court and Magistrates Court. The Sessions Court has jurisdiction over civil disputes valued up to 1 million ringgit. It also hears all criminal disputes except those involving the death penalty. The Magistrates Courts hears minor cases with civil claims of less than 1 million ringgit and criminal cases where fines are applied or imprisonment of less than 10 years is given for the offence. The Court of Appeals was established under the Federal Constitution and has the jurisdiction to determine appeals from the High Court on criminal; and civil cases. Also, alternative dispute resolutions methods may be used including arbitration, adjudication and mediation. In Malaysia, a claim is commenced via a summons or writ. A defendant who has been served a writ has 14 days to enter an appearance to defend the claim, and file a statement of defence, after which the plaintiff has 14 days to reply and file a counterclaim. A plaintiff may obtain a judgement without a trial by applying for a summary judgement which is awarded if the defendant has no defence. Also, a party may apply to strike out the whole or part of the plaintiff's writ if, for example, it does not establish a reasonable cause of action. Order 34 of the Rules of Court 2012 for pre-trial case management, the court may direct the parties to settle the dispute through mediation (Dispute Resolution Review: Malaysia, Arun C. et al., 2023) As there are transparent decision-making and dispute resolution mechanisms in place. SG60 and SG80 are met. However, SG100 is not met as there is insufficient evidence that dispute processes have been tested and proven to be effective.

Seychelles

For Seychelles, there is also no specific mention of dispute resolution in the Fisheries Act (Act 20 of 2014) (TGS, 2014). However, the act establishes an appeals board and clearly sets out the grounds for appeal including against any decision of the Authority that was "manifestly unfair." The act also makes clear that subsequent appeals may be made to the Supreme Court. This is likely to be sufficient for SG80.

Mauritius

For Mauritius, there is no specific mention of dispute resolution in either the Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007), or on the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping website (TPM, 2007). The national judicial system will serve as a mechanism in certain disputes, but evidence will be required for the efficacy of this in relation to fisheries at the EEZ level. SG60 is met.

Madagascar

This review did not find any specific information on the dispute resolution process in the fishery. Another MSC pre-assessment notes difficulties in effectiveness when disputes are escalated by local jurisdiction to national level decision-makers (Japp and Norman, 2018). Overall, SG60 and SG80 requirements are met for Madagascar nationally as the management systems, through section D2 of the FiTi, include consultation processes that regularly seek and accept relevant information, including local knowledge. The management system also demonstrates consideration of the information obtained. However, SG100 is not met because the management

system cannot demonstrate consideration of all the information or explain how it uses such information in decisions across all responsible jurisdictions, as well as the full range of management and enforcement decisions.

C	Respect for rights			
	Guide post	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: No Madagascar: Yes	IOTC: No Malaysia: Yes Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

In accordance with UNCLOS, Article 5(i) states that in order to conserve and manage straddling fish stocks and highly migratory fish stocks, States fishing on the high seas are required to take into account the interests of artisanal and subsistence fishers. The IOTC is a party to the UN Fish Stock Agreement (UNFSA 1995) which recognizes the interests of small scale and artisanal fishers, and of communities and Small Island states dependent on their food and livelihoods on tuna resources (Article 30). IOTC considers the rights of individual countries with a special emphasis on the needs of developing states. While IOTC primarily focuses on the conservation and management of tuna and tuna-like species in the IOTC area, it does take into consideration the needs and interests of artisanal and subsistence fishers to some extent, as their livelihoods can be affected by the Commission's decisions. IOTC has an intention and has a management system that observes the legal rights that are created explicitly or established by custom for people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. Therefore, the IOTC management system meets the requirement for SG60 and SG80. However, as there is no formal commitment from IOTC to ensure the management system considers the legal rights of those customary fishing, SG100 is not met.

Malaysia

The Malaysian fisheries management system has measures in place to protect the rights of artisanal and subsistence fishers. Under the Fisheries Act of 1985 Part IX (41 d and e), the Minister may establish an area in Malaysian waters as a marine park or marine reserve in order to "preserve and enhance the pristine state and productivity of such area or part thereof; and regulate recreational and other activities in such area or part thereof to avoid irreversible damage to its environment." The Malaysia National Plan of Action for the Management of Fishing Capacity assists artisanal

and subsistence fishers through a moratorium on the issuance of licenses in coastal areas, establishing fishing zones for conservation and limiting vessel size and fishing gear, deployment of artificial reefs and monitoring fish catches. The National Policy on Biodiversity requires the involvement of artisanal and subsistence fishers in the management and protection of Community Conservation Areas (CCAs). In 1982, the DOF implemented four-zone marine protected areas (MPAs) denoted as A zone (0-5 nm), B zone (5-12 nm), C zone (12-30 nm) and D zone (beyond 30 nm). Vessels using commercial gears are not allowed to fish in Zone B onwards depending on the tonnage. This is aimed to ensure the equitable allocation of resources and reduce conflict between traditional and commercial fishers. On the basis of the above, the team concludes that the national management system has mechanisms to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. SG60, SG80 and SG100 are met for Malaysia.

Seychelles

For Seychelles, there is no mention of customary rights, or artisanal, subsistence or traditional fishing in The Fisheries Act (Act 20 of 2014) (TGS, 2014). The Seychelles Fisheries Sector Policy and Strategy 2019 does state that "The fisheries of Seychelles are owned by all Seychellois and shared between numerous stakeholders" (TGS, 2019), but it is not clear if there is a formal commitment. On the other hand, in the EU-Seychelles agreement, although no explicit reference is made to legal rights established by custom, etc., it is implicit, mainly through Article 3: "The Parties hereby undertake to promote sustainable fisheries in the Seychelles fishing zone on the basis of the principle of non-discrimination between the different fleets fishing in that fishing zone, without prejudice to the agreements concluded between the developing countries in that geographical region, including reciprocal fisheries agreements" SG60 is met. In addition, both the EU CFP and the Seychelles Fisheries Act, fisheries policy and fisheries management plans recently developed in Seychelles (2019), explicitly emphasise the autonomy of Seychelles and the rights of its people to benefit from its fisheries resources. The same applies to other parts of the EU with which Seychelles and the EU have fisheries agreements, as described above (France, Mayotte, Comoros, Mauritius, Madagascar). These management systems therefore respect the legal rights of the states in the Indian Ocean region with which agreements exist and these agreements apply the IOTC CMMs (including addressing stock issues (P1) and other measures related to ecosystem management. SG80 is met. In relation to SG100, work is underway through the IOTC Technical Committee on Allocation Criteria (IOTC, 2019i). However, there is still no final global IOTC agreement on access rights and allocations between distant water fleet and coastal states, SG100 is not met.

Mauritius

For Mauritius, there is no mention of customary rights, or artisanal, subsistence or traditional fishing in The Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) (TPM, 2007). There is brief mention of artisanal fishers being issued with a Fisherman registration card. However, the Mission Statement of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping "To strengthen governance and harness the marine resources in our Exclusive Economic Zone for fostering sustainable development in contribution to human well-being, food security and poverty alleviation". This indicates that customary rights are likely to be respected, but more definitive evidence would be required to demonstrate that these are observed, or formally committed to. SG60 is given here.

Madagascar

The Code ensures allocation of areas for artisanal, small-scale commercial fishing and subsistence fishing. Article 9 of the Code protects the interest of subsistence fishing, small-scale fishing, and fishing craft. Based on this information, it is clear the management system at a minimum observes the rights created for subsistence communities. At least SG80 is met for SIc.

Overall Performance Indicator (PI) Rationale

Draft scoring range	IOTC ≥ 80 Malaysia: ≥ 80 Seychelles: ≥ 80 Mauritius: 60 – 79 Madagascar: ≥ 80
Information gap indicator	Information sufficient to score PI

PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: No Madagascar: Yes	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No
Rationale				
IOTC Functions, roles and responsibilities are explicitly defined within IOTC. The main functions of IOTC under Article V of the IOTC Agreement are to: Keep under review the conditions and trends of the tuna stocks and related species to gather, analyse and disseminate scientific information, catch, and effort statistics and other relevant data; - Encourage, recommend and coordinate research and development activities in respect of the stocks and fisheries covered in the Agreement; - Adopt conservation and management measures on the basis of scientific evidence; and - Keep under review the economic and social aspects of the fisheries, bearing in mind, in particular, the interests of developing coastal states. Any government that is a member of the United Nations, this includes Malaysia, may join the Commission. Also, any inter-governmental economic integration organization constituted by the States that may have transferred to it competence over the matters governed by the Convention, such as the EU, may become a member. To become a Contracting Party, an instrument of adherence to the Convention must be deposited with the Director-General of FAO-UN. Exceptions apply to States which are not members of the UN, such as Taiwan which has been invited to IOTC meetings as an affected party (Medley et al., 2023). IOTC provides the opportunity for all countries with an interest in the tuna fisheries to be involved as either a contracting party or non-contracting party. It also provides the opportunity for interested stakeholders to be involved through the observer status. Taiwan, for example, although it is a non-contracting party is involved in IOTC consultation processes The IOTC Rules of Procedure				

define the roles and responsibilities for its contracting parties and non-contracting parties. It is the responsibility of the CPCs and the Secretariat to ensure the CPCs understand their areas of responsibility and interaction. IOTC regularly collects data concerning catch and effort, and implements research programs and stock assessments. Annual plenary and technical meetings and specialist working groups are held by IOTC where information from the CPCs and the specialist working groups is considered for formulation of tuna fishery management decisions. The Commission and its subsidiary bodies including the Scientific (SC) and the Compliance Committees (CoC), and the Working Parties on Tropical Tunas (WPTT), and on Ecosystem and Bycatch (WPEBB) regularly seek relevant information to be incorporated into the management system. To facilitate effective engagement of its stakeholders IOTC provides training and support to States that lack capacity in fisheries data management and science. On the basis of the above SG60 and SG80 are met. However, IOTC has had problems with flag states that have not applied its conservation and management measures to their vessels, and not supplying timely data. Also, the roles and responsibilities of the CPCs are not always understood, therefore, SG100 is not met.

Malaysia

Functions, roles and responsibilities of Malaysia's fisheries management system are explicitly defined and well understood for key areas of responsibility and interaction. Under the Fisheries Act of 1985 the Minister is responsible for all matters concerning fisheries including the conservation and management and development of maritime fishing and fisheries in Malaysian waters. The Minister has the power to make rules concerning the conservation and management of Malaysia's marine resources. The rules include: fishing vessels and fishing methods, maximum allowable catch, closed seasons, protected areas, appointment of officers, licensing procedures, offences and penalties. Also, the Minister by Gazette may, establish marine reserves and parks. The Minister is responsible for appointing the Deputy General Directors of Fisheries and fisheries officers and deputy fisheries officers. The Minister is also responsible for implementing the provisions of the Fisheries Act 1985. There are four key departments that are involved in Malaysia's fisheries: Department of Fisheries (DoF) responsible for the management of fisheries resources, Ministry of Science, Technology and the Environment (MOSTE) which provides the scientific foundation for fisheries management, Fisheries Development Authority (FDAM) responsible for the enhancement of livelihoods for fishers, value-added processing and marketing of fish products and law enforcement agencies that include the fisheries Marine Service, Coast Guard and Marine Police. The Department of Fisheries (DoF) is comprised of the following: Fisheries Biodiversity Division, Fisheries Conservation and Protection Division, Fisheries Research Institute, Engineering Division, Policy and Strategic Planning Division, Capture Fisheries Resources Division, Aquaculture Division, Fisheries Extension Division, Management Service Division and Legal Office. It provides services for the following: Aquaculture, Marine Park and Resource Development, Capture Fisheries, Import and Export, Research and Certification. The responsibilities of DoF that are relevant to this fishery include:

- Enforcement of the Fisheries Act 1985 and the Exclusive Economic Act 1984,
- Management, conservation and rehabilitation of fisheries resources to ensure their sustainability,
- Conducting fisheries research,
- Monitoring pollution affecting the fisheries resources, and
- Collecting fisheries data.

Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction for the organisations and individuals involved in fisheries management, therefore SG60 and SG80 are met. However, it would be difficult to conclude that all areas of interaction and responsibility are understood so SG100 is not met.

Seychelles

For Seychelles, The Powers of the Minister Authorised Fishery Officers are clearly set out in The Fisheries Act (No. 20 of 2014) (TGS, 2014). The Ministry of Fisheries and Agriculture (MFAg) has overall responsibility for fisheries policy with responsibility for implementation with the Seychelles Fishing Authority (SFA) (Seychelles Fishing Authority (Establishment) Act 1984). The SFA is subdivided into various divisions, such as The Fisheries Management Unit, SFA Fisheries Research, the Monitoring Control and Surveillance Division and others related to infrastructure, aquaculture and port development etc. The roles of each of these is clearly and accessibly presented on the SFA website (SFA, 2021). SG80 is met here

Mauritius

For Mauritius, Responsibility for fisheries management and marine conservation lies with the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping. Several divisions of the Ministry play a role in fisheries management (MBE, 2021). These include: Fisheries Planning and Licensing Division; Monitoring Control Surveillance/Vessel Monitoring System/Port State Control and Import-Export Division; Marine Resources Division; Marine Conservation Division; Marine Science Division. SG60 should be met here.

Madagascar

The roles and responsibilities involved with fisheries management in Madagascar is explicitly defined in the Fisheries and Aquaculture Code (2015). The Ministry oversees implementing laws taking into account the guidelines of national fisheries policy, defines the general rules of management in compliance with international commitments and responsible for MCS, scientific research and the organisation of consultations with stakeholders, amongst other roles. The Code further sets out the roles of fisheries management advisory councils, the preparation and maintenance of development plans in collaboration with stakeholders. The functions, roles and responsibilities are understood for key areas. SG80 is met for SLA.

Consultation processes				
b	Guide post	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: No Madagascar: No	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

Consultation at the international level is formalized and there are well defined mechanisms for seeking and considering information that is relevant to the management of the tuna fisheries. At the national and fishery level consultation processes vary and the opportunity for interested parties to be involved in management decisions need to be assessed on a case-by-case basis. IOTC members can vote, but cooperating non-members are not entitled to participate in voting. IOTC decision-making is generally by consensus, however voting procedures for conservation and management measures (resolutions) are agreed to by two-thirds majority vote of members present and voting. These measures are binding on all Commission members, however, there is an “opt-out” clause where a member can file an objection to the measures and by doing so is not bound to adhere to it. The Rules of Procedure sets mechanisms for dealing with resolutions, which are required to be based the best scientific information available and are designed to maintain tuna populations at levels that will permit optimum utilization. SG60 and SG80 are considered met, on the basis that IOTC consultation processes regularly seek and accept relevant information, and the management systems have demonstrated consideration of this information through the adoption of IOTC conservation and management measures. Although, the precautionary approach is not implicit in decision-making processes, increasingly, it is explicit in IOTC Resolutions and scientific reports. The IOTC Agreement, in compliance with Annex II of the UNFSA, requires that the Commission be more cautious when information is uncertain, unreliable or inadequate and does not use the absence of adequate scientific information as a reason for postponing or failing to take conservation and management measures. The scientific reports state what and how information is being used and justification is proved for information that is rejected. However, some management information that is used by IOTC is not clearly reported and it is not clear how different sources of information are weighed. Thus SG100 is not met.

Malaysia

The DoF often engages in consultations with stakeholders to gather input, feedback and insights concerning fisheries management issues. The consultations can involve fishers, industry representatives, environmental groups, researchers and other relevant stakeholders. The DoF aims to make informed decisions that consider a range of perspectives and promote sustainable fisheries management. The management of Malaysia's fisheries is the sole responsibility of the DoF, however, other government agencies may provide inputs in the development and implementation of conservation and management measures, policies and strategies when required. Fisheries management decision-making in the development of measures and policies is publicized and allows for consultation and participation with fisheries associations, cooperatives, fishing industry and other stakeholders. In the development stage for management measures and policies, stakeholders are usually invited to participate in discussions prior to implementation. For example, in the development of the National Plan of Action for the Management of Fishing Capacity multiple stakeholders participated in the process. The stakeholders included various relevant government agencies (Malaysia Maritime Enforcement Agency, Ministry of Agriculture and AgroBased Industry etc.) and NGOs (WWF Malaysia, National Fisherman's Association etc.). Malaysia's fisheries management system includes consultation processes that regularly seek and accept relevant information, including local knowledge and the management system demonstrates consideration of the information obtained, therefore SG60 and SG80 are met. However, SG100 is not met as there is no evidence of explanations of how information obtained is used or not used.

Seychelles

For Seychelles, The Fisheries Act (No. 20 of 2014) requires the Authority to consult with the fisheries industry, local fishermen and such other persons engaged in fishing and fishing related activities, in reviews of fisheries management plans (TGS, 2014). The Seychelles Fisheries Sector Policy 2019 states that the policy has been developed as a result of stakeholder consultations. The Policy includes the statement that the ministry and authority will "consult with non-governmental organisations and the fishing industry on new management measures" (TGS,2019). SG80 is met.

Mauritius

For Mauritius, The Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) enables the minister to establish Consultative Committees which may comprise "such other persons as the Minister may appoint" (TPM, 2007). There is no other reference in the act to consultation requirements or evidence of consultation processes on the Ministry website. SG60 should be met here.

Madagascar

From the above information provided from the Fisheries and Aquaculture Code, the management system includes consultation processes to obtain relevant information, for example in the development of fisheries management plans in Article 13. SG60 is met. What is not clear from this review, is how the consultation processes seek and accept information from interested parties. SG80 is not met.

C	Participation			
	Guide post		The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?		IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: No Madagascar: No	IOTC: Yes Malaysia: No Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

At the regional level, there are annual meetings of the Commission and specialist working groups; information derived from these meetings and working groups is used by decision-makers as a basis for management decision-making by IOTC. The opportunity to become a cooperating party or non-cooperating party is open to all, including non States. Attendance at Commission and related meetings is comprehensive with logistic and financial support provided to CPCs to ensure attendance, meaningful involvement and interaction in the cooperative management of fisheries in the IOTC area. Registered NGOs and eNGOs (within limits for the number of delegates) are able to attend meetings as observers and may make verbal presentations and/or written

statements, which are included in the official record. IOTC provides training and support to strengthen institutional capacity of developing countries to sustainably develop their fisheries so they can comply with IOTC conservation and management measures. This includes sufficient capacity to collect, maintain and analyse relevant data and to participate at meetings. The meeting dates and agendas are advertised on the IOTC website ahead of time, providing an opportunity for all interested and affected parties to be informed and be involved. While scientific reports state exactly how information is used by decision-makers it is not clear how much weight is given to compliance, economic and social issues. There is sufficient evidence that IOTC meets SG80 and SG100, providing opportunity and encouragement for all interested and affected parties to be involved, and facilitating effective engagement.

Malaysia

The Malaysian consultation process provides opportunity for all interested and affected parties to be involved. The DoF established the Industrial Consultative Council which consists of relevant stakeholders from the industry and government agencies. Annual consultations are held to consider the views of stakeholders on issues prior to decision making. The stakeholders and public cooperate closely with the DoF and enforcement agencies by reporting sightings of IUU fishing via a 24-hour communication facility provided by DoF. Information on fishing industry and cooperation for MCS activities is disseminated by DoF through various means including its website, gazette and social media platforms. Thus SG80 is met. However, SG100 is not met as further evidence that the Malaysian consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement needs to be gathered.

Seychelles

At a national level the SFA and Ministry of Blue Economy, Marine Resources, Fisheries and Shipping for example, participates in the IOTC meetings. They also work in close collaboration with Ministry Natural Resources, Ministry of Environment and Energy, Seychelles Coast Guard, Seychelles Ports Authority, other Government institutions, fishermen and boat owners associations and NGO's (SFA, 2019a, SFA,2019b and [http://www.sfa.sc/Legislations/SFA Establishment Act.pdf](http://www.sfa.sc/Legislations/SFA%20Establishment%20Act.pdf)). As bilateral partners and through SFPA, AGAC and the EU there is opportunity for engagement which is facilitated through meetings between bilateral partners as well as between CPCs in IOTC. For both Mauritius and Seychelles, it has not been possible to identify evidence which indicates that consultation processes provide opportunities for all interested and affected parties to be involved. However, for Seychelles, the Fishery Law (2014) provides for stakeholder consultation in the design, implementation, monitoring and review of FMPs. Increasingly, stakeholders are involved in the decision-making process for tuna, although the tuna Fisheries Management Plan remains a proposal. SG80 is met.

Mauritius

At a national level the SFA and Ministry of Blue Economy, Marine Resources, Fisheries and Shipping for example, participates in the IOTC meetings. They also work in close collaboration with Ministry Natural Resources, Ministry of Environment and Energy, Seychelles Coast Guard, Seychelles Ports Authority, other Government institutions, fishermen and boat owners associations and NGO's (SFA, 2019a, SFA,2019b and [http://www.sfa.sc/Legislations/SFA Establishment Act.pdf](http://www.sfa.sc/Legislations/SFA%20Establishment%20Act.pdf)). As bilateral partners and through SFPA, AGAC and the EU there is opportunity for engagement which is facilitated through meetings between bilateral partners as well as between CPCs in IOTC. For both Mauritius and Seychelles, it has not been possible to identify evidence which indicates that consultation processes provide opportunities for all interested and affected parties to be involved.

However, for Seychelles, the Fishery Law (2014) provides for stakeholder consultation in the design, implementation, monitoring and review of FMPs. Increasingly, stakeholders are involved in the decision-making process for tuna, although the tuna Fisheries Management Plan remains a proposal. SG80 is not met.

Madagascar

This review could also not discern whether the consultation process provides opportunity for all interested and affected parties. On the 27 September 2021, Madagascar have joined the Fisheries Transparency Initiative (FiTi) which is a global partnership that seeks to increase transparency and participation for a more sustainable management of marine fisheries. By making fisheries management more transparent and inclusive, the FiTi promotes informed public debates on fisheries policies and supports the long-term contribution of the sector to national economies and the well-being of citizens and businesses that depend on a healthy marine environment. This would assist dramatically in increasing these scores; however no formal reports are available yet, therefore, SG 80 is not met.

Overall Performance Indicator (PI) Rationale

Draft scoring range	IOTC ≥ 80 Malaysia: ≥ 80 Seychelles: ≥ 80 Mauritius: 60 – 79 Madagascar: 60 – 79
Information gap indicator	Information sufficient to score PI

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy for the SMU and associated enhancement activities has clear long-term objectives to guide decision-making that are consistent with MSC fisheries standard, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are implicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are explicit within and required by management policy.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: No Malaysia: Yes Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

The IOTC Basic Texts state explicit long-term objectives that guide decision making in a manner consistent with Principle 1 of the MSC Fisheries Standard, e.g. in Articles IV and VIII. IOTC subsequently adopted Resolutions 2015-12 and 2015-11, which state that the Commission should apply a precautionary approach and an ecosystem-based approach to fisheries management, respectively. These resolutions are consistent with international texts, such as the UNFSA and with the FAO CCRF. However, because the resolutions are not mandatory, the precautionary approach is not required by current management policy. SG80 is met but not SG100.

Malaysia

Malaysia's management policy has clear long-term objectives to guide decision-making. The long-term objective of the Fisheries Act of 1985 is "the conservation, management and development of maritime and estuarine fishing and fisheries, in Malaysian fisheries waters....". Decision-making in the development of the various National Plans of Action concerning fisheries and the adoption of the IOTC Resolutions are guided by this long-term objective. As a cooperating member of IOTC, Malaysia is required to adopt its objectives that guide decision-making consistent with the MSC Standard and the precautionary approach. Malaysia has clear long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are explicit and required by management policy, therefore, SGs60, SG80 and SG100 are met.

Seychelles

GSA 4.5 states: “The emphasis of this PI is on the presence or absence of long term objectives at the broader management level, i.e., the objectives of the management agency for all UoAs under its control. Where UoAs fall under dual control (e.g., internationally managed UoAs where management falls to both a national agency and a bilateral/multilateral agreement or organisation, or federally managed UoAs which have some provincial or state management component), the subject of PI 3.1.3 should be the wider organization”. Furthermore, GSA 4.5 also states: “This PI forms an important part of the overall understanding of the use or otherwise of a precautionary approach in the UoA but is not concerned with the operational implementation of the precautionary approach within the ‘day-to-day’ management of the UoA itself.” In relation to the UoAs and the fishery being considered, the long-term objectives that guide decision-making consistent with MSC fisheries standards and the precautionary approach are therefore those established by the IOTC. Therefore, SG80 is met by default.

Mauritius

GSA 4.5 states: “The emphasis of this PI is on the presence or absence of long term objectives at the broader management level, i.e., the objectives of the management agency for all UoAs under its control. Where UoAs fall under dual control (e.g., internationally managed UoAs where management falls to both a national agency and a bilateral/multilateral agreement or organisation, or federally managed UoAs which have some provincial or state management component), the subject of PI 3.1.3 should be the wider organization”. Furthermore, GSA 4.5 also states: “This PI forms an important part of the overall understanding of the use or otherwise of a precautionary approach in the UoA but is not concerned with the operational implementation of the precautionary approach within the ‘day-to-day’ management of the UoA itself.” In relation to the UoAs and the fishery being considered, the long-term objectives that guide decision-making consistent with MSC fisheries standards and the precautionary approach are therefore those established by the IOTC. Therefore, SG80 is met by default.

Madagascar

GSA 4.5 states: “The emphasis of this PI is on the presence or absence of long term objectives at the broader management level, i.e., the objectives of the management agency for all UoAs under its control. Where UoAs fall under dual control (e.g., internationally managed UoAs where management falls to both a national agency and a bilateral/multilateral agreement or organisation, or federally managed UoAs which have some provincial or state management component), the subject of PI 3.1.3 should be the wider organization”. Furthermore, GSA 4.5 also states: “This PI forms an important part of the overall understanding of the use or otherwise of a precautionary approach in the UoA but is not concerned with the operational implementation of the precautionary approach within the ‘day-to-day’ management of the UoA itself.” In relation to the UoAs and the fishery being considered, the long-term objectives that guide decision-making consistent with MSC fisheries standards and the precautionary approach are therefore those established by the IOTC. Therefore, SG80 is met by default.

Overall Performance Indicator (PI) Rationale

Draft scoring range

IOTC ≥80
 Malaysia: ≥80
 Seychelles: ≥80
 Mauritius: ≥80
 Madagascar: ≥80

Information gap indicator

Information sufficient to score PI

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific and associated enhancement management system(s) activities have clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery and associated enhancement management system(s).	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery and associated enhancement management system(s).	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery and associated enhancement management system(s).
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No
Rationale				
IOTC There are well-defined long-term and short-term objectives under the IOTC Agreement which help to support outcomes expressed by MSC Principles 1 and 2. The IOTC Agreement incorporates the legal framework of UNCLOS, the FAO Compliance Agreement, and the Code of Conduct. The long-term objectives for the conservation and sustainable utilization of target tuna species are encapsulated in IOTC Resolutions. IOTC's Resolution 13/09 On the Conservation of Albacore Caught in the IOTC Area of Competence requires the Scientific Committee to advise the Commission, (a) "on Target Reference Points (TRPs) and Limit Reference Points (LRPs) used when assessing albacore stock status," and (b) "on potential management measures having been managed through the Management Strategy Evaluation (MSE) process. These management measures have been adopted to ensure the conservation and optimal utilization of albacore stocks as laid down in Article V of the Agreement for the establishment of the IOTC. More particularly, Resolution 13/09 for albacore stipulates that, in a short a period as possible and no later than 2020 (i) the fishing mortality rate does not exceed the fishing mortality rate allowing the stock to deliver MSY and (ii) the spawning biomass is maintained at or above the MSY level." The Commission's CPCs have agreed to take measures to not increase catches of yellowfin and bigeye taken by their longline vessels. With the objective of controlling the fishing effort of bigeye tuna the Commission adopted Resolution 22/03 which includes a management procedure that was designed to achieve: 60% probability that bigeye tuna spawning stock biomass achieves the target reference point of SBmsy by 2034-2038; - The bigeye tuna stock biomass avoids breaching the interim limit reference point specified in Resolution 15/10 with a high probability; and operates with the following constraint;				

- The maximum increase or decrease in the TAC shall be 15% relative to the previous TAC.

Also, a TAC allocation among CPCs will take place according to a process agreed external to this measure and the Commission will develop a mechanism to constrain the catch of bigeye tuna no later than 2025. With the objective of controlling fishing effort of yellowfin tuna, the Commission adopted Resolution 18/01 which stipulates that CPCs whose longline catches of yellowfin tuna reported for 2014 were above 5000 MT to reduce their longline catches of yellowfin tuna by 10% from 2014 levels. The Commission has also adopted a number of Resolutions with short term objectives to protect the unintentional catch of marine mammals and other non-target species. The short term objectives are outlined in specific Resolutions for marine turtles, mobulid rays, sharks including blue and whale, billfishes, cetaceans, and seabirds. (<https://www.iotc.org/conservation-and-management-measures>). On the basis of the above, SG60 and SG80 are met but SG100 is not met as not all objectives are well defined or measurable.

Malaysia

The Fisheries Act 1985 requires that each fishery should have fisheries plans based on the best scientific information available and designed to ensure optimum utilization of fishery resources, consistent with sound conservation and management principles and with the avoidance of overfishing, and in accordance with the overall national policies, development plans and programmes. Also, to ensure sustainable fisheries development in Malaysia the National Agro-food Policy 2021-2030 was developed through scientific research and cooperation with relevant regional and international organizations. Malaysia's various Nations Plans of Action concerning fisheries have clear fisheries-specific objectives:

- National Plan of Action for to Prevent, Deter and Eliminate IUU fishing objective is “to prevent, deter and eliminate IUU fishing by providing all States with comprehensive, effective and transparent measures by which to act, including through appropriate RFMOs established in accordance with international law.”
- National Plan of Action for the Management of Fishing Capacity objective is “for the country to achieve an efficient, equitable and transparent management of fishing capacity.”
- National Plan of Action for the Conservation and management of Sharks objectives is “to ensure the conservation and effective management of sharks and rays and their long-term sustainable use, as outlined in the FAO IPOA-Sharks which aims to:
 - Ensure that shark and ray catches are sustainable;
 - Assess threats to shark and ray populations, determine and protect critical habitats, and implement harvesting strategies consistent with the principles of biological sustainability and rational long-term economic use;
 - Identify and provide special attention in particular to vulnerable and threatened shark and ray stocks;
 - Develop and improve the framework for establishing and coordinating effective consultation involving stakeholders in research, management and educational initiatives with and between States;
 - Minimize un-utilised incidental catches of sharks and rays; and
 - Encourage full use of dead sharks and rays.

As a member of IOTC, Malaysia is obliged to adopt its Resolutions for target and non-target species. Although these Resolutions have fishery-specific objectives only some are well-defined and measurable. Therefore, on the basis of the above, SG60 and SG80 are met but not SG100.

Seychelles

For Seychelles, also no fishery specific objectives for tuna fisheries in Seychelles have been identified. Objectives must therefore be inferred from those described in 3.1.3. As a member of IOTC, Malaysia is obliged to adopt its Resolutions for target and non-target species. Although these Resolutions have fishery-specific objectives only some are well-defined and measurable. Therefore, on the basis of the above, SG60 and SG80 are met but not SG100.

Mauritius

For Mauritius, no fishery specific objectives for tuna fisheries in Mauritius have been identified. Objectives must therefore be inferred from those described in 3.1.3. As a member of IOTC, Malaysia is obliged to adopt its Resolutions for target and non-target species. Although these Resolutions have fishery-specific objectives only some are well-defined and measurable. Therefore, on the basis of the above, SG60 and SG80 are met but not SG100.

Madagascar

The strategy was drafted in 2013 for discussion in the second half of 2014, but any further progress or information on this strategy was not identified, potentially due to the nature of the desk-based review (Cofrepêche et al., 2014). As noted in the National Biodiversity and Action Plans 2015 – 2025 Madagascar is currently in the process of establishing the tuna action plan. In August 2023, Madagascar signed new 'sustainable' tuna deal with the EU (13), within this deal it explicitly defines that vessels must meet the 2021 national strategy for tuna fisheries which actively defines its objectives for its blue economy, meeting SG80.

Draft scoring range	IOTC ≥ 80
	Malaysia: ≥ 80
	Seychelles: ≥ 80
	Mauritius: ≥ 80
	Madagascar: ≥ 80
Information gap indicator	Information sufficient to score PI

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific and associated enhancement management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific and enhancement objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific and enhancement objectives.	
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: No Mauritius: No Madagascar: No	
Rationale				
IOTC IOTC members can vote, but cooperating non-members are not entitled to participate in voting. IOTC decision-making is generally by consensus, however voting procedures for conservation and management measures (resolutions) are agreed to by two-thirds majority vote of members present and voting. These measures are binding on all Commission members, however, there is an “opt-out” clause where a member can file an objection to the measures and by doing so is not bound to adhere to it. The Rules of Procedure sets mechanisms for dealing with resolutions, which are required to be based the best scientific information available and are designed to maintain tuna populations at levels that will permit optimum utilization. Although, the precautionary approach is not implicit in decision-making processes, increasingly, it is explicit in IOTC Resolutions and scientific reports. The IOTC Agreement, in compliance with Annex II of the UNFSA, requires that the Commission be more cautious when information is uncertain, unreliable or inadequate and does not use the absence of adequate scientific information as a reason for postponing or failing to take conservation and management measures. Commission decision-making processes for issues that concern vessels that fish on the high-sea areas within the IOTC area are based heavily on Scientific Committee reports on the status of target and non-target tuna fishery related species and respond to serious issues, such as overfishing and suspected overfishing. The IOTC Resolutions provide a transparent response to scientific, technical, social, and cultural issues. Stock assessments and studies presented at the Scientific Committee identify serious issues at the regional level that are addressed through agreed Resolutions, for example, Resolution 13/09 for the conservation of albacore caught in the IOTC area of competence. All management measures apply equally inside parties EEZ’s and on high seas. Members enforce management measures within their own EEZ. Based on the above, SG60 and SG80 are met.				

Malaysia

Malaysia has established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. The decision-making processes within the Malaysian Department of Fisheries involves several steps which include:

- Problem Identification: Identifying issues related to fisheries conservation and management.
- Data Collection and Analysis: Gathering relevant data, research and information to determine the scope and impact of the issues.
- Stakeholder Consultation: Engaging with various stakeholders including fishers, industry representatives and environmental groups.
- Policy Formulation: Develop policies, regulations and management measures based on the information gathered and considering inputs from stakeholders.
- Internal Review: Review the proposed policies within the DoF to ensure they align with the departments goals and objectives.
- Interdepartmental Coordination: Coordinate with other relevant government agencies to ensure alignment with broader policies and regulations.
- Legal and Regulatory Review: Ensure that the proposed policies adhere to legal frameworks and regulatory requirements.
- Public Consultation: Seek public input through open consultations to gather feedback and input.
- Finalization of Policies: Make any necessary adjustments based on feedback received and finalizing the policies.
- Implementing Planning: Developing strategies and plans for the implementation of the policies, including timelines and responsibilities.

The Fisheries Act 1985 requires that each fishery should have fisheries plans based on the best scientific information available and designed to ensure optimum utilization of fishery resources, consistent with sound conservation and management principles and with the avoidance of overfishing, and in accordance with the overall national policies, development plans and programmes. The DoF strives to base its decision-making processes on the best available scientific information. Scientific research and data play a crucial role in understanding the state of fisheries resources, ecosystem health and potential impacts of management decisions. By incorporating scientific findings, the DoF aims to make informed and evidence-based decisions in a timely manner that contribute to sustainable fisheries management. On the basis of the above, SG60 and SG80 are met

Seychelles

For Seychelles, fishery specific management is primarily undertaken at the RFMO level. However the coastal state EEZ plays an important role in implementing RFMO level management. And some additional management measures (with associated decision-making processes) occur at the Coastal state EEZ level. There is no national tuna management plan for the Seychelles. There is a "Fisheries Comprehensive Plan", from November 2019, which addressed tuna fisheries, however much of the focus is on structural, safety or socio-economic considerations, rather than resource management (MFA,2019). SG60 should be met here.

Mauritius

For Mauritius, fishery specific management is primarily undertaken at the RFMO level. However the coastal state EEZ plays an important role in implementing RFMO level management. Although some additional management

measures of relevance to the fishery (with associated decision-making processes) are likely to occur at the Coastal state EEZ level, it has not been possible to identify these. No national management plan for tuna fisheries has been identified. It is therefore unclear what decisions are taken in relation to tuna within Mauritius. SG60 should be met. Decisions of relevance to the tuna fishery would be taken by the Marine Resources Division of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping. The goal of this division is to "To plan, develop and manage the fishery resources in a sustainable manner". One of the stated activities of the division is to "Monitoring of catch, effort, exploitation rates of tuna and tuna-related species landed by licensed foreign fishing vessels and local boats and transshipment by licensed and non-licensed fishing vessels/carriers". This suggests that some decision-making processes are likely to be in place, but further evidence would be required to show that these are "established" in order to meet SG80.

Madagascar

Madagascar is a member of IOTC and so is obliged to implement CMMs developed by the Commission. The process results in measures to achieve the objectives of IOTC. Sla meets SG60. Without more information on how the process works, SG80 cannot be said to be met for Sla.

Responsiveness of decision-making processes

b	Guide post	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: No Mauritius: No Madagascar: No	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

Decision-making processes within IOTC are transparent and outcomes are published as resolutions from annual meetings. Decision-making is based on scientific advice and where there is consensus among members it leads to measures and strategies to achieve fishery specific objectives. Non-contracting countries are not entitled to take part in voting. Resolutions approved by members based on recommendations by IOTC staff or the Scientific Committee must be adhered to by members and non-contracting parties. However, if a CPC objects to a Resolution or conservation measure, the recommendation will not be binding on that contracting part. The contracting party is not required to justify its objection and there are no limits placed upon the contracting party whether the objection is acceptable or not. Objections have not appeared to be deleterious to the decision-making

processes for the tuna stocks in the IOTC area. There is detailed reporting available to explain the decisions taken in relation to the management system with all meeting documents and minutes uploaded to the IOTC website and distributed to members as outlined in the Rules of Procedure. Initial positions and information used for the basis of a decision is available in technical reports provided to the meetings or proposals for resolutions from some Parties. However exactly how decisions are reached is not exactly obvious as there are no formal detailed explanations linking the information provided to the decision made. Decision-making is adaptive in that decisions are evaluated by the various specialist meetings and feedback is provided to the Commission. The Commission has reacted appropriately in its decision-making through resolutions and recommendations for stocks that it is responsible for. For albacore and the impacts of longline fisheries targeting tropical tunas on the wider ecosystem, scientists and fisheries managers address relevant issues through the Working Parties (WP). As there is evidence that decision-making processes respond to serious and other important issues in a transparent, timely and adoptive manner for the stocks considered, SG60 and SG80 are met. However, it is not evident that all issues identified are responded to by IOTC as the objections process probably impedes contentious issues being raised and resolved (Medley et al., 2023) so SG100 is not met.

Malaysia

Malaysia's decision-making processes respond to serious and other important issues. To address an increasing number of IUU fishing activities by foreign vessels within its EEZ, Malaysia developed a National Plan of Action to Prevent, Deter, and Eliminate IUU Fishing. The Plan's objective is "to prevent, deter and eliminate IUU fishing by providing all States with comprehensive, effective and transparent measures by which to act, including through appropriate RFMOs established in accordance with international law." To address issues concerning the depletion of fisheries stocks Malaysia implemented a National Plan of Action for the Management of Fishing Capacity for the country to achieve an efficient, equitable and transparent management of fishing capacity. A Nation Plan of Action for the Conservation and Management of Sharks was implemented to ensure the conservation and effective management of sharks and rays and their long-term sustainable use, as outlined in the FAO IPOA-Sharks which aims to: 1) Ensure that shark and ray catches are sustainable; 2) Assess threats to shark and ray populations, determine and protect critical habitats, and implement harvesting strategies consistent with the principles of biological sustainability and rational long-term economic use; 3) Identify and provide special attention in particular to vulnerable and threatened shark and ray stocks; 4) Develop and improve the framework for establishing and coordinating effective consultation involving stakeholders in research, management and educational initiatives with and between States; 5) Minimize un-utilised incidental catches of sharks and rays; and 6) Encourage full use of dead sharks and rays. As Malaysia is not a signatory to the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing data on the frequency of dockside inspections is limited. Also, as multiple agencies are involved in port control and the lack of inter-agency coordination there is limited data conducting dockside inspections (Pramod G., 2017). Therefore, there is insufficient evidence that Malaysia's decision-making processes have responded to gaps in the monitoring of fishing vessels offloading catches in designated ports. As a contracting member of IOTC Malaysia is able to participate in decision-making processes for the development of Resolutions and Recommendations concerning the management of tuna fisheries within the IOTC area. It has one vote and as most decisions at IOTC are made through consensus Malaysia's participation in IOTC meetings is significant in the decision-making process. Based on the above, SG60 and SG80 are met, however SG100 is not met as there is insufficient evidence that decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.

Seychelles

For Seychelles, there is no national tuna management plan. There is a "Fisheries Comprehensive Plan", from November 2019, which addressed tuna fisheries, however much of the focus is on structural, safety or socio-economic considerations, rather than resource management (MFA 2019). It is therefore unclear how responsive fisheries specific management is at the national / EEZ level. The Fisheries Sector Policy 2019 states (under policy 2) that the government will "maintain annual quotas in the industrial tuna fishery such as established by the IOTC to help the yellowfin tuna stock to recover, and extend to the other major tuna stocks at the earliest overfished and overfishing signs, as measures to ensure sustainability". This indicates an intention to introduce management in an adaptive way. SG60 should be met here.

Mauritius

For Mauritius, no national management plan for tuna fisheries has been identified. It is therefore unclear whether decisions taken in relation to tuna in Mauritius are responsive. SG60 should be met here for the Scoring Issue as a whole because the final score would take account of the responsiveness of decision-making at the RFMO level.

Madagascar

As a member of IOTC, Madagascar is bound to respond to issues identified at the regional level, and address through management measure implementation at the national level. SG60 is at least met. It is not clear at this stage as to whether this occurs in a transparent and timely manner, or whether wider implications of decisions are taken into account. Only SG60 is met for SIb.

Use of precautionary approach

C	Guide post	Decision-making processes use the precautionary approach and are based on best available information.		
	Met?		IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: No Madagascar: Yes	

Rationale

IOTC

Although the precautionary approach in IOTC decision-making processes is implicit rather than explicit, it is used in practice in most circumstances. IOTC Resolution 12/01 (IOTC_RES, 2012a, requires that "in the determination of appropriate reference points and harvest control rules, consideration must be given to major uncertainties, including the uncertainty about the status of the stocks relative to the reference points, uncertainty about biological, environmental and socio-economic events and the effects of fishing activities on non- target and associated or dependent species." and "in applying the precautionary approach, the Commission, shall adopt, after consideration of the advice supplied by the IOTC Scientific Committee, stock specific reference points... and

associated harvest control rules "Commission reports indicate that action is being undertaken through its Resolutions to support the need for the precautionary approach in tuna fisheries management. However, as the precautionary approach is not explicitly defined, it is difficult to determine whether it is used in all tuna fisheries management decisions. Overall, IOTC decision-making processes are based on the precautionary approach using the best available information, therefore SG80 is met.

Malaysia

Malaysia's decision-making processes use the precautionary approach and are based on best available information. The development and implementation of Malaysia's National Plans of Action to Manage Fishing Capacity, for sharks and to prevent, deter and eliminate IUU fishing are examples of it using the precautionary approach to ensure that Malaysian capture fisheries remain sustainable. IOTC Resolution 12/01 (IOTC_RES, 2012a) requires that the precautionary approach be used in tuna fisheries management decision-making processes. Specifically, the Resolution requires that the Commission be more cautious when information is uncertain, unreliable, or inadequate and does not use the absence of adequate scientific information as a reason for postponing or failing to take conservation and management measures. As a member of IOTC, Malaysia is required to apply the precautionary approach in accordance with Resolution 12/01 when approving IOTC tuna fisheries conservation and management measures. Based on the above, SG80 is met as Malaysia's decision-making processes use the precautionary approach and are based on best available information.

Seychelles

For Seychelles, There is no national tuna management plan for the Seychelles. There is a "Fisheries Comprehensive Plan", from November 2019, which addressed tuna fisheries, however much of the focus is on structural, safety or socio-economic considerations, rather than resource management (MFA 2019). It is therefore unclear to what extent the precautionary principle is applied. The Fisheries Act 2014 makes explicit reference to the need for the precautionary approach to be applied when determining the level of fisheries access agreements, if the level of fishing is not determined by an applicable management plan (TGS, 2014). This could be taken as an example of the application of the precautionary approach in relation to tuna fisheries. SG80 is met.

Mauritius

For Mauritius, no national management plan for tuna fisheries has been identified. It is therefore unclear whether decisions taken in relation to tuna in Mauritius follow the precautionary approach. SG80 cannot be met here.

Madagascar

Article 9 of the Fisheries and Aquaculture Code (2015) specifically refers to the application of the precautionary approach and ecosystem approach to preserve, management, and exploit fishery resources and to make conservation and resource management measures based on the best scientific data. SG80 is met for Slc.

Accountability and transparency of management system and decision-making process

d	Guide post	Some information on the fishery's performance and management action is	Information on the fishery's performance and management action is available on request, and	Formal reporting to all interested stakeholders provides comprehensive information on the fishery's
---	------------	--	---	---

		generally available on request to stakeholders.	explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: No Madagascar: No	IOTC: Yes Malaysia: No Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

Representatives of non-Parties, relevant intergovernmental organizations, and non-governmental organizations, including environmental organizations with recognized experience in matters pertaining to IOTC and the tuna industry of any of the members of the Commission operating in the IOTC area, have the opportunity to take part in the meetings of the Commission, as observers. Such participants are given timely access to relevant information, subject to the Rules of Procedure and access to information that the Commission may adopt. Reports of the IOTC plenary sessions are published formally and are publicly available, as are the recommendations from research, monitoring, evaluation and performance review. Information available for the decision-making is published, allowing stakeholders to draw their own conclusions and there is frequent feedback from NGOs, scientists, and other stakeholders (Medley et al., 2023). NGOs and other stakeholders engage with IOTC and CPCs, with feedback provided on a regular and in a transparent manner. Given the detailed formal public reporting of decisions and information to which those decisions are based, SG60, SG80 and SG100 are met.

Malaysia

Information concerning Malaysia's fishery licensing, key documents and projects is publicly available on the DoF website. New regulations and amendments to regulations are gazetted in local newspapers and public notices. Information on fishing industry and cooperation for MCS activities are disseminated through various means. The DoF established the Industrial Consultative Council which consists of relevant stakeholders from the industry and government agencies. Annual consultations are held to consider the views of stakeholders on issues prior to decision-making. Malaysia as a member of IOTC is required to adopt its Resolutions and Recommendations. Information concerning IOTC decision-making processes for the development of tuna fishery management measures, plenary session meetings, working groups and standing committee meetings is published and publicly available on its website. Based on the above, SG60 and SG80 are met, however SG100 is not met as formal reporting to stakeholders that provides comprehensive information on the fishery's performance and management actions is not always available or distributed to all interested parties.

Seychelles

For Seychelles, Details of the amount of vessels engaged in the industrial longline fishery are available on the SFA website (SFA 2021). Elsewhere on the website the SFA Annual fisheries Statistic Report gives an excellent picture of the pattern of catches within the EEZ including by the international long-line fleet (SFA 2019). This excellent level of transparency is driven by Seychelles pioneering involvement in the Fisheries Transparency Initiative (FITI), although their 2019 report notes that further improvements in transparency are still required, including making fishery access agreements publicly available (FITI MSG, 2021). SG80 is met.

Mauritius

For Mauritius, No national management plan for tuna fisheries has been identified. It is therefore unclear whether decisions taken in relation to tuna in Mauritius are accountable and transparent. The information about the fishery on the Ministry website is limited and out of date. Some information about the fishery is available in the annual report (MOEMFS 2019), including, catches, logbook return and sampling for both the domestic and foreign tuna long-line fleet. SG60 should be met here.

Madagascar

Information on the fishery's performance and activities is supplied on the IOTC website, which annually publishes national reports, the Compliance Questionnaire and catch and effort information in Working Party on Tropical Tunas reports. SG60 is met for SId. Without more information, it cannot be said where information is supplied to stakeholders when requested, or whether explanations are given for any actions or lack of action with respect to findings and relevant recommendations. SG80 is not met for SId on a precautionary basis.

Approach to disputes

e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

IOTC has not been subject to court challenges and there is no evidence of any on-going disrespect or defiance of the law through repeated violations (Medley et al., 2023). The only notable exception is fishing companies and

fishing vessels listed on the IUU fishing list. Resolution of disputes through IOTC meetings and members, including Malaysia, Seychelles, Mauritius and Madagascar, agreeing to abide by IOTC provisions and management measures indicates that there are some measures taken to avoid legal disputes. By resolving disputes through IOTC meetings the CPCs have avoided legal disputes. As there are currently no outstanding judicial disputes and that so far the CPCs have avoided resorting to using international law to settle disputes SG60 and SG80 are met. However, SG100 is not met as there is no evidence that IOTC has acted pro-actively to avoid disputes.

Malaysia

IOTC has not been subject to court challenges and there is no evidence of any on-going disrespect or defiance of the law through repeated violations (Medley et al., 2023). The only notable exception is fishing companies and fishing vessels listed on the IUU fishing list. Resolution of disputes through IOTC meetings and members, including Malaysia, Seychelles, Mauritius and Madagascar, agreeing to abide by IOTC provisions and management measures indicates that there are some measures taken to avoid legal disputes. By resolving disputes through IOTC meetings the CPCs have avoided legal disputes. As there are currently no outstanding judicial disputes and that so far the CPCs have avoided resorting to using international law to settle disputes SG60 and SG80 are met. However, SG100 is not met as there is no evidence that IOTC has acted pro-actively to avoid disputes.

Seychelles

IOTC has not been subject to court challenges and there is no evidence of any on-going disrespect or defiance of the law through repeated violations (Medley et al., 2023). The only notable exception is fishing companies and fishing vessels listed on the IUU fishing list. Resolution of disputes through IOTC meetings and members, including Malaysia, Seychelles, Mauritius and Madagascar, agreeing to abide by IOTC provisions and management measures indicates that there are some measures taken to avoid legal disputes. By resolving disputes through IOTC meetings the CPCs have avoided legal disputes. As there are currently no outstanding judicial disputes and that so far the CPCs have avoided resorting to using international law to settle disputes SG60 and SG80 are met. However, SG100 is not met as there is no evidence that IOTC has acted pro-actively to avoid disputes.

Mauritius

IOTC has not been subject to court challenges and there is no evidence of any on-going disrespect or defiance of the law through repeated violations (Medley et al., 2023). The only notable exception is fishing companies and fishing vessels listed on the IUU fishing list. Resolution of disputes through IOTC meetings and members, including Malaysia, Seychelles, Mauritius and Madagascar, agreeing to abide by IOTC provisions and management measures indicates that there are some measures taken to avoid legal disputes. By resolving disputes through IOTC meetings the CPCs have avoided legal disputes. As there are currently no outstanding judicial disputes and that so far the CPCs have avoided resorting to using international law to settle disputes SG60 and SG80 are met. However, SG100 is not met as there is no evidence that IOTC has acted pro-actively to avoid disputes.

Madagascar

IOTC has not been subject to court challenges and there is no evidence of any on-going disrespect or defiance of the law through repeated violations (Medley et al., 2023). The only notable exception is fishing companies and fishing vessels listed on the IUU fishing list. Resolution of disputes through IOTC meetings and members, including Malaysia, Seychelles, Mauritius and Madagascar, agreeing to abide by IOTC provisions and management measures indicates that there are some measures taken to avoid legal disputes. By resolving disputes through IOTC meetings the CPCs have avoided legal disputes. As there are currently no outstanding judicial disputes and that so far the CPCs have avoided resorting to using international law to settle disputes SG60 and SG80 are met. However, SG100 is not met as there is no evidence that IOTC has acted pro-actively to avoid disputes.

Overall Performance Indicator (PI) Rationale

Draft scoring range	IOTC: ≥ 80
	Malaysia: ≥ 80
	Seychelles: 60 – 79
	Mauritius: 60 – 79
	Madagascar: 60 – 79
Information gap indicator	Information sufficient to score PI.

PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery and associated enhancement activities are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guide post	Monitoring, control and surveillance mechanisms exist, and are implemented in the fishery and associated enhancement activities and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery and associated enhancement activities and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system has been implemented in the fishery and associated enhancement activities and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No
Rationale				
IOTC IOTC's Compliance Committee was formally created in 2002 by the adoption of Resolution 02/03 which was superseded in 2010. The Compliance Committee is responsible for reviewing all aspects of CPCs individual compliance with IOTC conservation and management measures in the IOTC area and it reports directly to the Commission on its deliberations and recommendations. The monitoring of compliance is conducted through the assessment of reports provided by the CPCs. Also, monitoring of compliance is conducted through data reports and information submitted according to resolution requirements. The Compliance Committee is assisted by the Compliance Section which reviews and assesses the compliance of CPCs in implementing IOTC conservation and management measures. It also provides support to the CPCs in the implementation of MCS tools adopted by the Commission. The Compliance Section is also responsible for maintaining the Record of Authorized Vessels, Active Vessel List, IUU Vessels List, and other relevant information relevant to compliance on the IOTC website. Under Resolution 16/12 a permanent Working Group was established to act as an advisory body to the Compliance Committee on the implementation of conservation and management measures. In 2011 IOTC adopted Resolution 16/11 on port state measures (PSM) to prevent, deter and eliminate illegal, unreported and unregulated fishing. Port State Competent Authorities of CPCs of IOTC, where foreign vessels offload tuna and tuna-like species or call into port to use port services, are responsible for implementing the Resolution. IOTC provides PSM training materials and legal assistance to CPCs and promotes interagency cooperation to implement PSM at the national level. IOTC has established a Regional Observer Program (ROP) to monitor				

transshipments at-sea. At-sea transshipments are banned in the IOTC area, except under special circumstances where the ROP is responsible for monitoring the transshipment to ensure that the tuna and tuna-like species are properly recorded. At the 17th Session of the Commission (IOTC 2013), three conservation and management measures were adopted to strengthen the compliance of fishing vessels in the IOTC area. These include:

- Resolution 19/04 concerning the IOTC Record of Vessels Authorized to Operate in the IOTC Area of Competence which requires all CPCs that issue authorization to vessels to fish for IOTC managed species to submit to the IOTC Executive Secretary, an updated template of the official authorization to fish outside National Jurisdictions and update information whenever this information changes;
- Resolution 15/01 on the recording of catch and effort by fishing vessels in the IOTC area of competence which requires each flag CPC fishing vessel to submit to the IOTC Executive Secretariat a template of its official logbooks and for CPCs that use electronic logbook systems, to provide a set of screen captures of catch data and the name of the certified software; and
- Resolution 14/05 concerning a record of licensed foreign vessels fishing for IOTC species in the IOTC area of competence and access agreement information which requires all CPCs that issue licenses to foreign flag vessels to fish in their EEZs for species managed by IOTC in the IOTC Area to submit to the IOTC Executive Committee Secretary, a template of the official Coastal State fishing license.

These Resolutions make it mandatory for Flag States and Coastal States to send samples and templates of Flag State Authorization to fish, Fishing Logbooks and Coastal State Fishing Licenses to IOTC. On the basis of the above SG60 is met. However, SG80 and SG100 are not met as the IOTC MCS system has not demonstrated an ability to enforce relevant management measures (Medley et al., 2023).

Malaysia

MCS mechanisms are in place in Malaysia that include its flagged fishing vessels that operate in the high seas within the IOTC area. As a member of the IOTC, Malaysian fishing vessels can fish in the IOTC area provided that they are licensed by the DoF in accordance with Part IV: General Licensing Provision of the Fisheries Act 1985 and Fisheries Licensing of Local Fishing Vessel) (Maritime) Regulations 1985. Those vessels exceeding 500 GT are required to be registered under the Merchant Shipping Ordinance 1952. The DoF maintains the records of all licensed fishing vessels and their current owners and authorized operators. In 1999, as a condition of a fishing license Malaysia requires that Vessel Monitoring Systems (VMS) be installed on fishing vessels 70 GRT and above. The Fisheries Act 1985 sets out the requirements for the VMS installation and its operation. As of 2014, all industrial fishing vessels that operate in Zones B and C are required to have a VMS. Also, DoF has installed CCTV on all longline and purse seine vessels as a tool for EMS. The Resource Protection Division of DoF has the power to inspect vessels, fishing gear, VMS, catch and effort data, landing data, enforce laws and conduct surveillance. The Maritime Enforcement Agency has eight aircraft and 136 patrol vessels that conduct aerial and sea surface surveillance operations. Aerial surveillance is conducted by various maritime enforcement agencies including the Royal Malaysian Air Force, Royal Malaysian Police Air Wing Unit, DoF, and Maritime Enforcement Agency. Surface surveillance is conducted by DoF, Maritime Enforcement Agency, Royal Malaysian Navy and Royal Malaysian Police (Marine). There are 19 MCS bases that organize fisheries and maritime patrols located throughout Malaysia. Procedures for boarding and inspecting fishing vessels are outlined in the DoF Standard Operating Procedure (SOP) and under sections 46 and 47 Of the Fisheries Act 1985. The Maritime Enforcement Agency is mostly responsible for enforcement in the offshore waters of Malaysia while the Marine Police and DoF are responsible for enforcing regulations within 10nm of the coastline. Malaysia has minimal aerial surveillance capabilities due to the limited number of aircraft and the high

cost of surveillance operations. As Malaysia is not a signatory to the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing data on the frequency of dockside inspections is limited. Also, as multiple agencies are involved in port control and the lack of inter-agency coordination there is limited data conducting dockside inspections (Pramod G., 2017). The DoF has established a comprehensive system for the acquisition, storage and dissemination of MCS data. The DoF databases include information concerning licensing, offences, resource surveys, statistics and VMS tracking. Also, data and information on local and foreign flagged vessels conducting IUU fishing within Malaysian waters, as well as, vessels fishing on the high seas is collected by DoF. Under Section 15(2) of the Fisheries Act 1985, Malaysia has the authority to deny loading and unloading of any fish, fuel or supply or transshipping of any fish in Malaysian waters without the approval of the DoF. This also applies to foreign flagged vessels that have engaged in IUU fishing. Malaysia has yet to establish an observer programme due to financial constraints. For the Malaysian flagged UoA longline vessels participation in the IOTC observer program is not required as the fleet size is smaller than the minimum requirement set by IOTC. However, DoF has installed CCTV on all longline and purse seine vessels as an alternative for an observer onboard. On the basis of the above SG60 is met. In 2020, MCS mechanisms were severely impacted by COVID-19 management measures that were implemented at the national and regional levels. At-sea and dockside inspections of UoA catches were restricted as authorised officers were not allowed to board the fishing vessels. Due to these COVID-19 restrictions it would be difficult to conclude that Malaysia's monitoring, control and surveillance system has demonstrated an ability to enforce relevant management measures, strategies and/or rules since 2020, therefore SG80 and SG100 are not met.

Seychelles

For Seychelles, SFA works closely with several other organisations such as the Defence Forces (Coast Guard), Seychelles Airwings and Seychelles Police (the SFA has no offshore surveillance assets and relies on the Seychelles Coastguard and Seychelles Airwings to conduct surveillance missions). The Seychelles Fisheries Comprehensive plan notes that "There are no surveillance plans based on risk assessment and SFA relies heavily on information from fishermen on possible illegal fishing activities for interception" (MFA, 2019). The same document states that "SFA will develop and implement a National Plan of Action against IUU fishing by the first quarter of 2020". However, it is not clear whether this has been completed. Policy 8 of the Seychelles Fisheries Sector Policy is "Strengthening Monitoring, Control and Surveillance" (TGS, 2019). The Seychelles Fisheries sector policy also states: "Enforcement of regulatory measures is poor because of the lack of existing capacity and assets available to undertake onshore and offshore patrols," and goes on to state that "Reporting, monitoring, control of transshipment and landing of tuna in Seychelles' ports and inadequate surveillance of local waters are issues to be urgently addressed due to the lack of human and financial resources" (TGS, 2019). These statements could be seen as evidence that SG60 is possibly not met. However, the Echebaster purse seine MSC certified fishery public certification report (SCS Global Services 2018) notes there "are explicit definition of MCS requirements in the individual protocols (e.g. daily reporting, entry and exit reports, transshipments and landings, VMS, areas to be fished and observers)" in relation to the Seychelles Fisheries Partnership Agreements. Therefore, SG80 is possibly met, however the situation for longliners may be different. At this stage of the pre-assessment, without supporting data that can confirm this, a precautionary score of SG60 is allocated.

Mauritius

For Mauritius, Responsibility for enforcement of fisheries legislation to combat IUU fishing lies with the Fisheries Protection Service of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping. Activity is

coordinated from the Fisheries Monitoring Centre. Offshore enforcement falls under the Monitoring Control Surveillance/Vessel Monitoring System/Port State Control and Import-Export Division of the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping. Monitoring of VMS and verification against log-books are the main pillars of the enforcement strategy. The powers of fishery control officers are clearly set out in the Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) (TPM, 2007). There is a National Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing, published on the respective ministry website (MBE, 2010). It has not been possible to access a more up to date version of the plan. SG60 is given here.

Madagascar

Under Article 57 of the Fisheries and Aquaculture Code, all fishing vessels operating in Madagascan waters must keep logbooks, this should include the identity of the vessel, the composition of total catches, statistics on fishing effort, location, data and duration of fishing and information on any transshipments that have taken place. Under Article 58, they are further required to follow FAO standards regulating marking and identification of fishing vessels, mark fishing gear and recover lost gear. Fishing vessels are also required to use VMS, which allows automatic transmission of information to the Fisheries Surveillance department allowing permanent monitoring of the vessel's position. Madagascar ratified the Port State Measures Agreement in December 2016 (Loi n°2016-043) and is also part of the FISH-i Africa Task Force, which seeks to end IUU fishing in the western Indian Ocean. Fisheries monitoring is carried out by the Fisheries Monitoring Centre (CSP), which was created in April 1999 (IOTC, 2019b). Inspections in ports and transshipments are carried out by the CPC ensuring compliance with fisheries legislation. SG60 is met for Sla. Madagascar also submits a Compliance Questionnaire and national report to IOTC annually. Given this, there is a reasonable expectation that the MCS mechanisms in place are effective. Using the compliance questionnaire from 2019, 17 foreign vessels were inspected, and three transshipments monitored. There were no cases brought against any foreign vessels for undermining Fisheries Law or regulations. Unfortunately, that does not demonstrate an ability to enforce management measures and no alternative evidence could be found during this review. SG80 has not been awarded on a precautionary basis for Sla.

Sanctions

b	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No	IOTC: No Malaysia: No Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

Sanctions exist to address non-compliance with IOTC conservation and management measures. The Compliance Committee is responsible for addressing all non-compliance issues. The WPICMM established by Resolution

16/12 is responsible for the development of recommendations and guidelines for sanctions to address non-compliance with IOTC conservation and management measures for consideration by the CPCs and the Commission. An objective of the Resolution is to enhance the technical capacity of CPCs to implement and enforce IOTC conservation and management measures. IOTC CPCs provide annual Reports of Implementation to the Commission concerning actions that they have taken, under national legislation, to implement the conservation and management measures of the Commission. The reports include the imposition of penalties for non-compliance with IOTC conservation and management measures. Blacklisting of non-member vessels (IUU lists) has become a widespread practice among all of the RFMOs, including IOTC. There are no trade sanctions against nation states, although theoretically these may be possible. Sanctions are applied to fishing entities, such as IUU vessels and vessels that are detected as being non-compliant with resolutions. The conservation and management measures in place by IOTC are a deterrent to non-compliance, although the only sanction that IOTC would be able to apply is the withdrawal of membership. While some non-compliance has been detected it does not appear substantial, and by local and foreign fishing vessels. The sanctions are implemented through the confiscation of fishing vessels and fishing gear, fines and imprisonment. Also, fishing licenses may be revoked under section 33, Power of the court to order cancellation of license or permit: (1) Where any person is charged with and found guilty of an offence under the Act the court shall, in addition to any other penalty that may be imposed, order that any license or permit issued under the Act in relation to which the offence has been committed be cancelled. (2) Where any to whom a licence or permit has been issued under the Act is charged with or found guilty of a second or subsequent offence under the Act, efforts are being taken to reduce infractions. As sanctions to deal with non-compliance exist and provide an effective deterrent SG60 is met, however, there is limited information that the sanctions are consistently applied so SG80 and SG100 are not met.

Malaysia

Under the Fisheries Act 1985 sections 25, 31, 33, and 52, the DoF and relevant enforcement agencies implement sanctions for infractions committed the court shall, in addition to any other penalty that may be imposed, direct that such person be disqualified from holding a license or permit under the Act for a period not exceeding five years, and such person shall be guilty of an offence if he obtains or attempts to obtain any license or permit under the Act while he is so disqualified. As there is evidence that sanctions are being applied under the Fisheries Act 1985, SG60 is met. However, due to the impact of COVID-19 control measures on monitoring, control and surveillance mechanisms applied by regional and national governments since 2020 there is insufficient evidence that sanctions are consistently applied and thought to provide effective deterrence, so SG80 and SG100 are not met.

Seychelles

Offences and sanctions are clearly set out in the Fisheries Act 2014 (TGS, 2014). The Seychelles Fisheries Comprehensive plan does list a number of IUU incidences, but it does not state what sanction was applied. For Seychelles flag vessels, the Seychelles Fisheries Comprehensive plan notes that there has been an increase of illegal fishing within the EEZ, but not by vessels of the flags covered by this assessment. Fishers are generally thought to comply with the management system for the fishery under assessment although no clear evidence is available. The Echebaster purse seine MSC certified fishery public certification report (SCS Global Services 2018) notes that the Seychelles Fisheries Partnership Agreements contain articles related to non-compliance and sanctions. SG60 is met.

Mauritius

For Mauritius, offences and penalties are clearly set out in the Fisheries and Marine Resources Act 2007 (Act No. 27 of 2007) (TPM, 2007). The annual report of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping (MOEMFS 2019) provides a table of fines inflicted in breach of the Fisheries Act. It does not appear that any of these are related to the tuna longline fishery (unless these are within the 'other category'). This provides some evidence of application of sanctions, but not consistent application. Evidence of constant application of sanctions will be required for a higher score. SG60 is met.

Madagascar

Sanctions are outlined in Title VIII of the Fisheries and Aquaculture Code. This includes the fines/prison sentences for specific crimes, for example capture, transport and sale etc. of endangered and protected species; authorised transshipments; fishing without a licence or during closed seasons. SG60 is met. Whether they are consistently applied cannot be answered without further information. SG80 is not met for SIb.

Compliance

C	Guide post	Fishers and hatchery operators are generally thought to comply with the management system for the fishery and associated enhancement activities under assessment, including, when required, providing information of importance to the effective management of the fishery.	Some evidence exists to demonstrate fishers and hatchery operators comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery and associated enhancement activities.	There is a high degree of confidence that fishers and hatchery operators comply with the management system under assessment, including, providing information of importance to the effective management of the fishery and associated enhancement activities.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: NA Mauritius: NA Madagascar: NA	IOTC: Yes Malaysia: Yes Seychelles: NA Mauritius: NA Madagascar: NA	IOTC: No Malaysia: No Seychelles: NA Mauritius: NA Madagascar: NA

Rationale

IOTC

There are numerous issues concerning non-compliance; a Performance Review conducted in 2009 concluded that the multiple rules and requirements, with many being difficult to understand, contributed to the CPCs difficulty in complying with the IOTC management measures. The Performance Review found that some CPCs failed to provide timely and accurate data. However, the MCS capacity of IOTC has been strengthened through various projects which include the World Bank funded regional component of the SWIOFISH2 project (2018-2023), to assist eligible CPCs in the South-west region of the Indian Ocean to strengthen their compliance with IOTC Resolutions and build MCS capacity and the EU-funded €COFISH Workplan 3 on Marine Fisheries, which supports national & regional institutions actively engaged in fighting IUU fishing, and assists in the implementation of joint at-sea inspection patrols and training workshops on the accreditation of fisheries inspectors. The

Compliance Committee of the IOTC has the potential to address issues concerning non-compliance with IOTC Resolutions and recommendations. The Committee publishes annual compliance reports for each CPC from information received which are published on the IOTC website. As some evidence exists to demonstrate fishers comply with the IOTC management system including when required, providing information of importance to the effective management of the fishery SG60 and SG80 are met. However, there is insufficient evidence that there is a high degree of confidence that fishers comply with the IOTC management system, therefore SG100 is not met.

Malaysia

Malaysia flagged fishing vessels that operate in areas under the jurisdiction of IOTC are expected to comply with the conservation and management measures established by IOTC. Member countries, including Malaysia, are required to implement and enforce IOTC measures to ensure the sustainable management of tuna fisheries resources. Any detected non-compliance with these arrangements is annually reported in the IOTC Reports of Implementation and assessed by the Compliance Committee. CPCs individual Reports of Implementation describe actions they have taken, under national legislation, in the previous year, to implement conservation and management measures adopted by the Commission (including the imposition of penalties for violations). A review of recent IOTC CMR's indicates that identified non-compliance with its conservation and management measures by some flags and vessels remains an issue and an area for improvement (Medley et al., 2023). As some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery, SG60 and SG80 are met. However, there is insufficient evidence that there is a "high degree" of confidence that fishers comply with the international, regional and national tuna fishery regulations so SG100 is not met.

Seychelles

As per MSC guidance, this SI is not applicable to Coastal State EEZ, thus no evaluation here.

Mauritius

As per MSC guidance, this SI is not applicable to Coastal State EEZ, thus no evaluation here.

Madagascar

As per MSC guidance, this SI is not applicable to Coastal State EEZ, thus no evaluation here.

Systematic non-compliance

d	Guide post	There is no evidence of systematic non-compliance.		
	Met?		IOTC: Yes Malaysia: No Seychelles: No Mauritius: No Madagascar: No	

Rationale

IOTC

The IOTC members have a particular interest in protecting their fisheries resources and ensuring long-term sustainable benefits from these resources. Therefore, IOTC members have a strong interest in ensuring that management arrangements are comprehensive, efficient and robust, and non-compliance is minimized in the IOTC area. The information presented throughout the analysis for PI 3.2.3 suggests that there is no evidence of systematic non-compliance. It is noted that even in well-managed domestic and regional fisheries, with effective MCS systems in place, some non-compliance will occur. Overall, there does not appear to be evidence of systematic noncompliance at the IOTC level as such SG80 is met for the fisheries management system.

Malaysia

There are no records of non-compliance by the UoA vessels so SG60 is met; however, due to COVID-19 control measures that impacted monitoring, surveillance and control mechanisms in 2020 it would be difficult to conclude that there is no evidence of systematic non-compliance by some of the Malaysian flagged longline vessels that operate in the IOTC area, therefore, SG80 is not met for Malaysia.

Seychelles

There are no records of non-compliance by the UoA vessels so SG60 is met; however, due to COVID-19 control measures that impacted monitoring, surveillance and control mechanisms in 2020 it would be difficult to conclude that there is no evidence of systematic non-compliance by some of the Seychelles flagged longline vessels that operate in the IOTC area, therefore, SG80 is not met for Seychelles.

Mauritius

There are no records of non-compliance by the UoA vessels so SG60 is met; however, due to COVID-19 control measures that impacted monitoring, surveillance and control mechanisms in 2020 it would be difficult to conclude that there is no evidence of systematic non-compliance by some of the Mauritian flagged longline vessels that operate in the IOTC area, therefore, SG80 is not met for Mauritius.

Madagascar

There are no records of non-compliance by the UoA vessels so SG60 is met; however, due to COVID-19 control measures that impacted monitoring, surveillance and control mechanisms in 2020 it would be difficult to conclude that there is no evidence of systematic non-compliance by some of the Madagascan flagged longline vessels that operate in the IOTC area, therefore, SG80 is not met for Madagascar.

Overall Performance Indicator (PI) Rationale

Draft scoring range	IOTC: 60 – 79
	Malaysia: 60 – 79
	Seychelles: 60 – 79
	Mauritius: 60 – 79
	Madagascar: 60 – 79
Information gap indicator	Information sufficient to score PI

PI 3.2.4 – Monitoring and management performance evaluations

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific and enhancement management system(s) against its objectives There is effective and timely review of the fishery-specific and associated enhancement program(s) management system		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	The fishery and associated enhancement program(s) has in place mechanisms to evaluate some parts of the management system.	The fishery and associated enhancement program(s) has in place mechanisms to evaluate key parts of the management system.	The fishery and associated enhancement program(s) has in place mechanisms to evaluate all parts of the management system.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes Mauritius: Yes Madagascar: No	IOTC: Yes Malaysia: Yes Seychelles: No Mauritius: No Madagascar: No

Rationale

IOTC

IOTC has mechanisms in place to evaluate key parts of the management system and is subject to regular internal reviews. This is demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission. The Scientific Committee, the Compliance Committee and various working groups upload reports from these meetings on the IOTC website. The IOTC maintains an internationally recruited scientific staff to carry out all scientific research and analysis on behalf of the Commission with review provided by the Scientific Committee. The research programme and budget are approved annually by the Commission with a role to provide reliable and timely information for scientific advice. The research approach is proactive and identifies gaps in knowledge in advance driven by management needs. Identified research goes beyond the immediate short-term needs of the fishery-specific management system, including priorities such as food web and ecosystem research to create a strategic body of research. Also, annual summaries are conducted to evaluate the status of the implementation of National Plans of Action for seabirds and sharks. A Performance Review of IOTC was conducted in 2015. On the basis of the above, SG60, SG80 and SG100 are met.

Malaysia

There are mechanisms in place to evaluate key parts of the Malaysian fisheries management system. Malaysia as a member of IOTC is required to submit information concerning compliance, catch and effort data, and VMS data to IOTC and its different subsidiary bodies to review and evaluate its fishery's performance. The IOTC Compliance Committee (CoC) monitors and reviews the performance of CPCs including Malaysia annually. An evaluation of the Malaysian fisheries Monitoring, Control, and Surveillance system was conducted by IUU Watch in April 2018 as part of a global evaluation of MCS systems in 84 countries (Pramod, 2018). On the basis of the above, as there are

mechanisms in place to evaluate some parts of the fishery-specific management system. SG60, SG80 and SG100 are met for Malaysia.

Seychelles

The Seychelles Fisheries Sector Policy and Strategy 2019 commits to "Undertake an annual and end-term review of policy implementation" along with other reviews such as a review of bycatch policy, a review of the fisheries concessional loan scheme, a review of the foreign licensing system to balance investment and revenue increase and a review of the fisheries apprenticeship programme (TGS, 2019). The Seychelles Fisheries Sector Policy and Strategy 2019 is itself a form of review as it identifies challenges faced by the sector and management authority and proposes policies to address these. Seychelles was also one of the countries included in the IUU Risk Intelligence Global Evaluation of Fisheries MCS, although the country report is not available on-line (Pramod 2018). Collectively these are likely to meet the requirements of SG80.

Mauritius

A Policy and Governance Assessment for Marine and Coastal Resources for the Republic of Mauritius was carried out in 2011 which identified key gaps and needs in the fisheries sector (Nairobi Convention Secretariat, 2011). No more recent evaluations of parts of the fishery management system have been identified. Mauritius was also one of the countries included in the IUU Risk Intelligence Global Evaluation of Fisheries MCS, although the country report is not available on-line (Pramod 2018). The Ministry of Blue Economy, Marine Resources, Fisheries and Shipping does produce an annual report which is a form of review (MOEMFS 2019). Thus SG80 is met.

Madagascar

There are mechanisms in place to evaluate key parts of the fishery-specific management. Reports are submitted to IOTC regarding the performance of the fishery, implementation of CMMs, catch and effort data. Additionally, the overarching Ministère de l'Agriculture de l'élevage et de la pêche publishes reports annually, providing information on the fisheries sector. It analyses the level performance and results achieved by the Ministry through its three subsectors agriculture, livestock, and fisheries. Achievement rates are assessed against achievement of the objectives set according to the defined indicators. The 2019 report includes information about the tuna fishery agreement in the process of being finalised, cooperation with other nations and spatial planning and Blue Economy. It is not entirely clear if the MRHP conducted its own performance review, or whether this was done by another government body. To be precautionary, only SG60 was awarded. SG60 is met for SLA.

Internal and/or external review

b	Guide post	The fishery-specific and associated enhancement program(s) management system is subject to occasional internal review.	The fishery-specific and associated enhancement program(s) management system is subject to regular internal and occasional external review.	The fishery-specific and associated enhancement program(s) management system is subject to regular internal and external review.
	Met?	IOTC: Yes Malaysia: Yes Seychelles: Yes	IOTC: Yes Malaysia: Yes Seychelles: Yes	IOTC: No Malaysia: No Seychelles: No

		Mauritius: Yes Madagascar: Yes	Mauritius: No Madagascar: No	Mauritius: No Madagascar: No
Rationale				
IOTC				
IOTC has extensive mechanisms in place to review the management system as demonstrated by the various committees and working groups of IOTC that meet regularly and report their findings to the Commission. As well as the annual Commission meetings, regular meetings of the Scientific Committee, the Compliance Committee and working groups. IOTC carried out external performance reviews in 2009 and 2015. The International Seafood Sustainability Foundation (ISSF) has conducted regular evaluations and reviews of RFMO tuna fishery management systems, including IOTC, that extensively cover MSC performance indicators for P1 and P3 (i.e. the Sustainability of Global Tuna Stocks Relative to MSC Criteria Reports). IOTC performance has also been reviewed relative to other Tuna RFMOs. FAO commissioned a technical report that provided an overview of the activities and developments of RFMOs and RFABs from 2000 to 2017. It was based on a compilation of data and information for 46 RFMOs and RFABs, including the IOTC. As the management system is subject to regular internal reviews and occasional external reviews SG60 and SG80 are met. In the absence of regular external reviews SG100 is not met.				
Malaysia				
Malaysia as a member of the IOTC and therefore is a party to any internal and external reviews (outlined above). Malaysia has internal structures that monitor and review performance of its national fleets, in particular, those that operate outside of its EEZ. A review of the state of Malaysia's capture fisheries management was conducted by FAO in 2004 (Flewelling P. et al., 2004). The review consisted of assessing key parts of the Malaysian capture fisheries system and outlining the challenges that needed to be addressed in the future. An evaluation of the Malaysian fisheries Monitoring, Control, and Surveillance system was conducted by IUU Watch in April 2018 as part of a global evaluation of MCS systems in 84 countries (Pramod, 2018). The evaluation consisted of the results from a wide range of interviews and consultations with relevant government agencies that responded to twelve questions concerning MCS compliance. Malaysia's National Plans of Actions for sharks, management of fishing capacity and deterring IUU fishing are required to be reviewed every five years. The reviews are conducted via consultations with relevant government agencies, industry representative and other stakeholders to identify the gaps and provide input into the inclusion of additional management measures in the Plans. A review of the National Agrofood Policy (2021-2030) was conducted by the national government to assess its impact. As the management system is subject to regular internal reviews and occasional external reviews SG60 and SG80 are met. In the absence of regular external reviews SG100 is not met.				
Seychelles				
It is possible the current work being undertaken by the Blue Economy with the input of independent consultants and the advice from such as the World Bank and FITI (FiTI MSG, 2021) constitutes an occasional external review of the Seychelles management system. Therefore, SG80 is met.				
Mauritius				

No national management plan for tuna fisheries for Mauritius has been identified. No review of the fisheries' specific management at the EEZ level has been identified. SG60 should be met here.

Madagascar

There are internal reviews of the national management system as part of the process of submitting the above information to IOTC. SG60 is at least met. No information could be found of any external reviews for Madagascar. On this basis, SG80 could not be awarded for Sib.

Overall Performance Indicator (PI) Rationale

Draft scoring range	IOTC: ≥ 80
	Malaysia: ≥ 80
	Seychelles: ≥ 80
	Mauritius: 60 – 79
	Madagascar: 60 – 79
Information gap indicator	Information sufficient to score PI.

7 Appendices

7.1 References

- [1] Gascoigne J., Trott, P., Watt, P. & K. Collinson (2017) Marine Stewardship Council (MSC) Pre-Assessment Report Bumble Bee Seafoods albacore and yellowfin longline tuna Prepared by the Conformity Assessment Body (CAB)vME Certification Ltd
- [2] Peatman T. L. Bell, V. Allain, S. Caillot, P. Williams, I. Tuiloma, A. Panizza, L. Tremblay-Boyer, S. Fukofuka and N. Smith (2018) Summary of longline fishery bycatch at a regional scale 2003-2017 Rev 3 (19 April 2019) WCPFC-SC14-2018/ST-WP-03. <https://www.wcpfc.int/node/31016>
- [3] Trott, P., T. Emery, C. Daxboeck, L. Kell, K. Collinson, H. Jones, 2020. Marine Stewardship Council (MSC) Public Comment Draft Report Pan Pacific yellowfin, bigeye and albacore tuna longline fishery on behalf of Dongwon Industries Prepared by Control Union Pesca Ltd.
- [4] Morrison, A. Meer, F., Anhalzer, G., Humberstone, J. and S. Oliver (2019) Solomon Islands Longline Tuna Fishery MSC Public Certification Report on behalf of Tri Marine International Pte. Ltd Prepared by SCS Global Services.
- [5] Akroyd, J. and K. McLoughlin (2018) MSC SUSTAINABLE FISHERIES CERTIFICATION Fiji Albacore and Yellowfin Tuna longline Public Certification Report.
- [6] Gascoigne, J., Watt, W., Collinson, K. and C. Seip-Markensteijn (2021) Marine Stewardship Council (MSC) Public Certification Report Kiribati albacore, bigeye and yellowfin tuna longline fishery On behalf of Kiribati Fish Ltd Prepared by Control Union (UK) Ltd.
- [7] Sieben, C., Gascoigne, J. and Daxboeck. 2019. Marine Stewardship Council (MSC) Announcement Comment Draft Report of SZLC, CSFC & FZLC Cook Islands EEZ albacore, yellowfin and bigeye longline fishery. Lymington, United Kingdom.
- [8] Gilman, E., Zollett, E., Beverly, S., Nakano, H., Davis, K., Shiode, D., & Kinan, I. 2006. Reducing sea turtle by-catch in pelagic longline fisheries. *Fish and Fisheries*, 7(1), 2-23.
- [9] Filippi, D., Waugh, S., Nicol, S., 2010. Revised spatial risk indicators for seabird interactions with longline fisheries in the western and central Pacific. Scientific Committee. WCPFCSC6-2010/EB- IP 01. WCPFC
- [10] Sant, G., Goodman, G., Crook, V., Lack, M., and Oldfield, T.E.E. 2012. Fish and Multilateral Environmental Agreements (MEAs): developing a method to identify high risk commercially exploited aquatic organisms in trade and an analysis of the potential application of MEAs. JNCC Report No. 453. Peterborough: JNCC.
- [11] Akroyd, J., McLoughlin, K., Kirchner, C., Blyth-Skyrme, R., Norman, S and D. Japp (2020) AGAC four oceans Integral Purse Seine Tropical Tuna Fishery (Western and Central Pacific Ocean) Announcement Comment Draft Report, Lloyds Register.

8 Template information and copyright

This document was drafted using the 'MSC Pre-Assessment Reporting Template v3.1'.

The Marine Stewardship Council's 'MSC Pre-Assessment Reporting Template v3.1' and its content is copyright of "Marine Stewardship Council" - © "Marine Stewardship Council" 2019. All rights reserved.

Template version control		
Version	Date of publication	Description of amendment
1.0	15 August 2011	Date of first release
1.1	31 October 2013	Updated in line with changes to CR v1.3
2.0	08 October 2014	Confirmed background sections (Section 3) as optional (use of 'may' statements) Modified Table 6.3 to create a simplified scoring sheet to be completed in place of full evaluation tables. Made amendments to PIs based on Fishery Standard Review changes (e.g. removed original PIs 1.1.2, 3.1.4 and 3.2.4).
2.1	9 October 2017	Inclusion of optional full evaluation tables
3.0	17 December 2018	Release alongside Fisheries Certification Process v2.1
3.1	29 March 2019	Minor document changes for usability

A controlled document list of MSC program documents is available on the MSC website (msc.org)

Senior Policy Manager
Marine Stewardship Council
Marine House
1 Snow Hill
London EC1A 2DH
United Kingdom

Phone: + 44 (0) 20 7246 8900
Fax: + 44 (0) 20 7246 8901
Email: standards@msc.org